UNDERGROUND STORAGE TANK SITE ASSESSMENT

Federal Center South
Seattle Washington

Prepared for

U.S. General Services Administration
400 15th Street SW
Auburn, WA 98001-6599

Prepared by

Herrera Environmental Consultants, Inc.
2200 Sixth Avenue, Suite 601
Seattle, Washington 98121
Telephone: 206/441-9080

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Introduction

This report summarizes the site assessment activities and results for the removal of three underground storage tanks (USTs) and in-place closure of one UST located at the U.S. Federal Center South in Seattle, Washington. The Federal Center South is owned and managed by the United States General Services Administration. The Washington Department of Ecology site identification number is 10042. EP Johnson Construction & Environmental of Pasco, Washington performed the decommissioning activities; Rob Harrison of Herrera Environmental Consultants in Seattle, Washington conducted the site assessment; and Onsite Environmental Inc. of Redmond, Washington analyzed soil samples.

Site Location and Description

The Federal Center South facility is located at 4735 East Marginal Way South in Seattle, Washington (Figure 1). The general locations of the USTs is provided in Figure 2. The site is relatively flat with a gentle slope to the west. Based on topography, the likely direction of ground water flow is to the west-southwest toward the Duwamish River. The site is improved with asphalt and concrete pavement, landscaping, and several multi-story office buildings and warehouses. The water supply for the facility comes from the City of Seattle.

Tank T1, a single-shelled steel UST, was located about 18 feet east of the lower boiler room in office building 12.01, immediately to the east of a landscaped area beneath concrete paving (Figure 3). With a capacity of 300 gallons, the former diesel tank provided fuel for an emergency generator. Piping consisted of a suction line and a return line that ran from the tank into the fuel room a total distance of about 24 feet.

Tank T6, a single-shelled steel UST, was located immediately adjacent to the west side of office building 12.01 beneath asphalt paving (Figure 4). The 1,000 gallon diesel tank provided fuel for an emergency generator. The tank measured six feet in length, with a diameter of five feet. Suction and return lines extended from the tank to the generator housed in a metal shed along the west wall of building 12.01. The piping ran a total distance of about eight feet.

Tank T7, a spherical fiberglass UST seven feet in diameter, was located immediately adjacent to the west side of building 12.03 (motor pool), beneath concrete paving (Figure 5). The 1,000 gallon former waste-oil tank was used by the motor pool for disposal of fluids during vehicle maintenance.

Tank T8, a single-shelled steel UST, was located about 20 feet west of building 12.03, beneath concrete paving (Figure 4). The 12,000 gallon former gasoline tank provided fuel for motor pool vehicles. The tank measured 28 feet in length, with a diameter of eight feet. Piping consisted of a supply line that ran from the tank to the pump dispenser located about 12 feet south of the tank.

According to Department of Ecology records, tank T1 was installed in 1986 and tanks T6, T7, and T8 were installed in December 1964. Information provided by General Services Administration stated that tank T1 was in use until decommissioned on May 19, 1998. Use of tank T6 was suspended prior to 1980. Tank T7 was used until the early 1990s, and tank T8 was removed from service in the late 1980s.

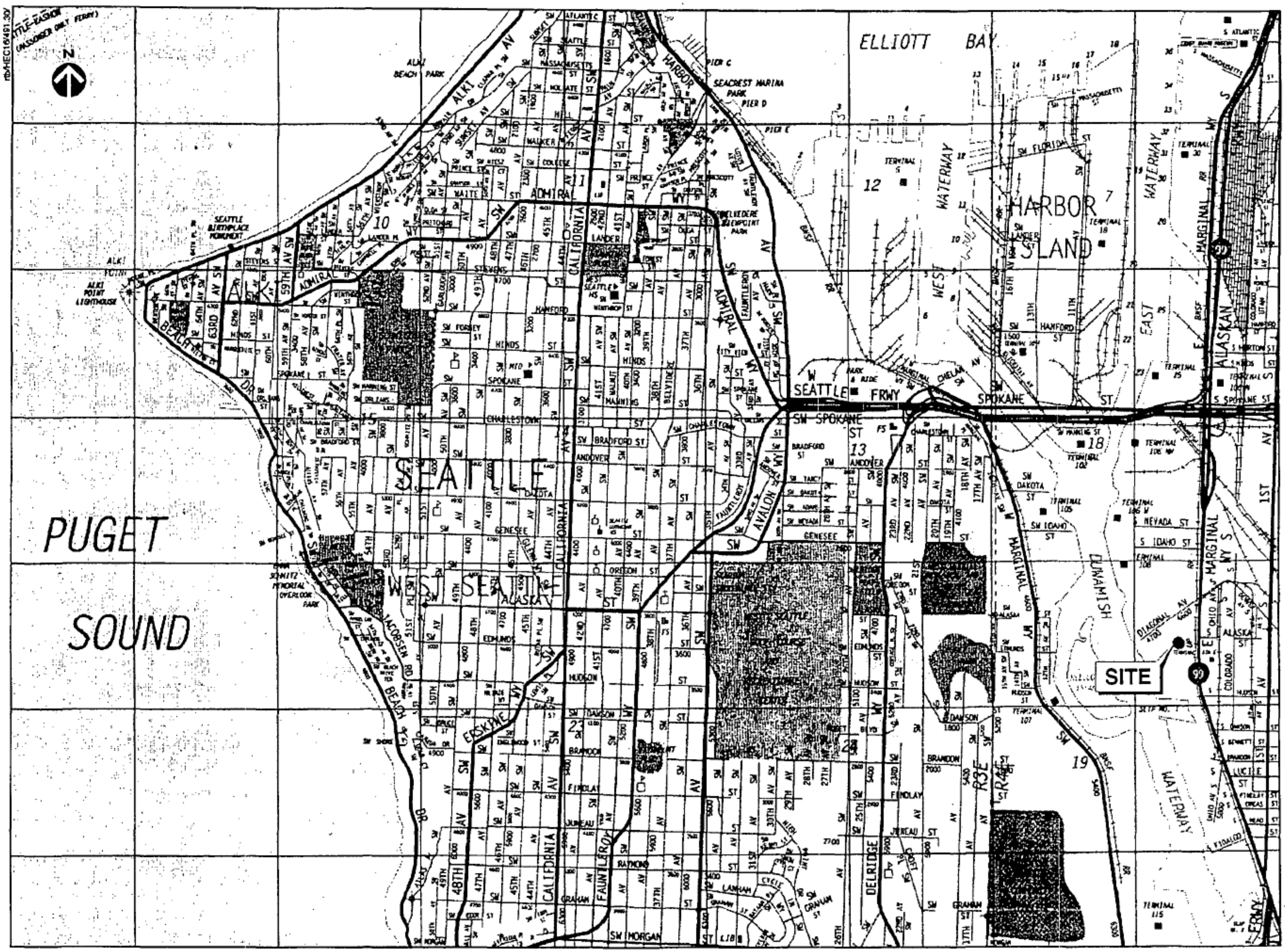


Figure 1. Location map, Federal Center South, Seattle, Washington.

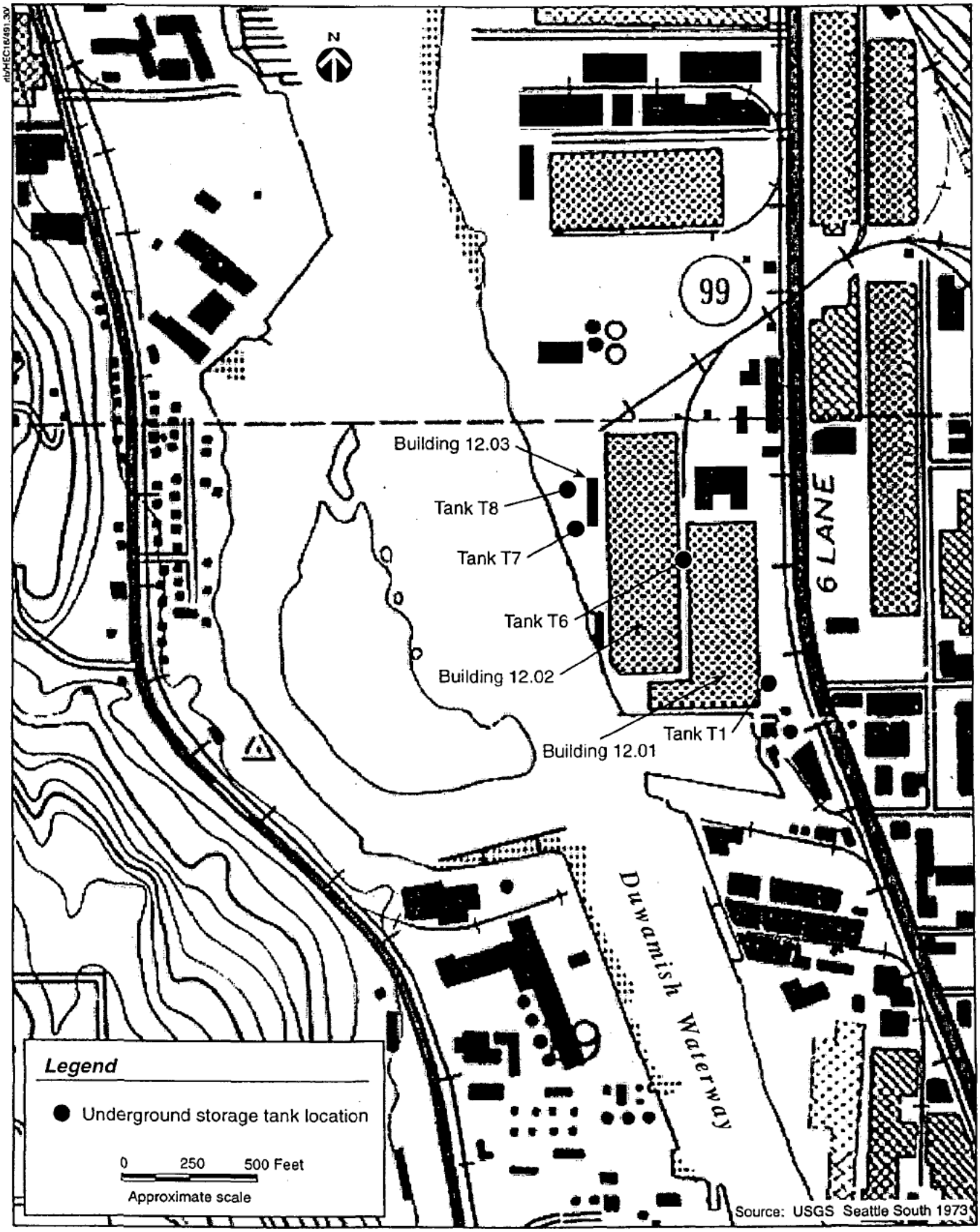


Figure 2. **Site location map, Federal Center South, Seattle, Washington.**

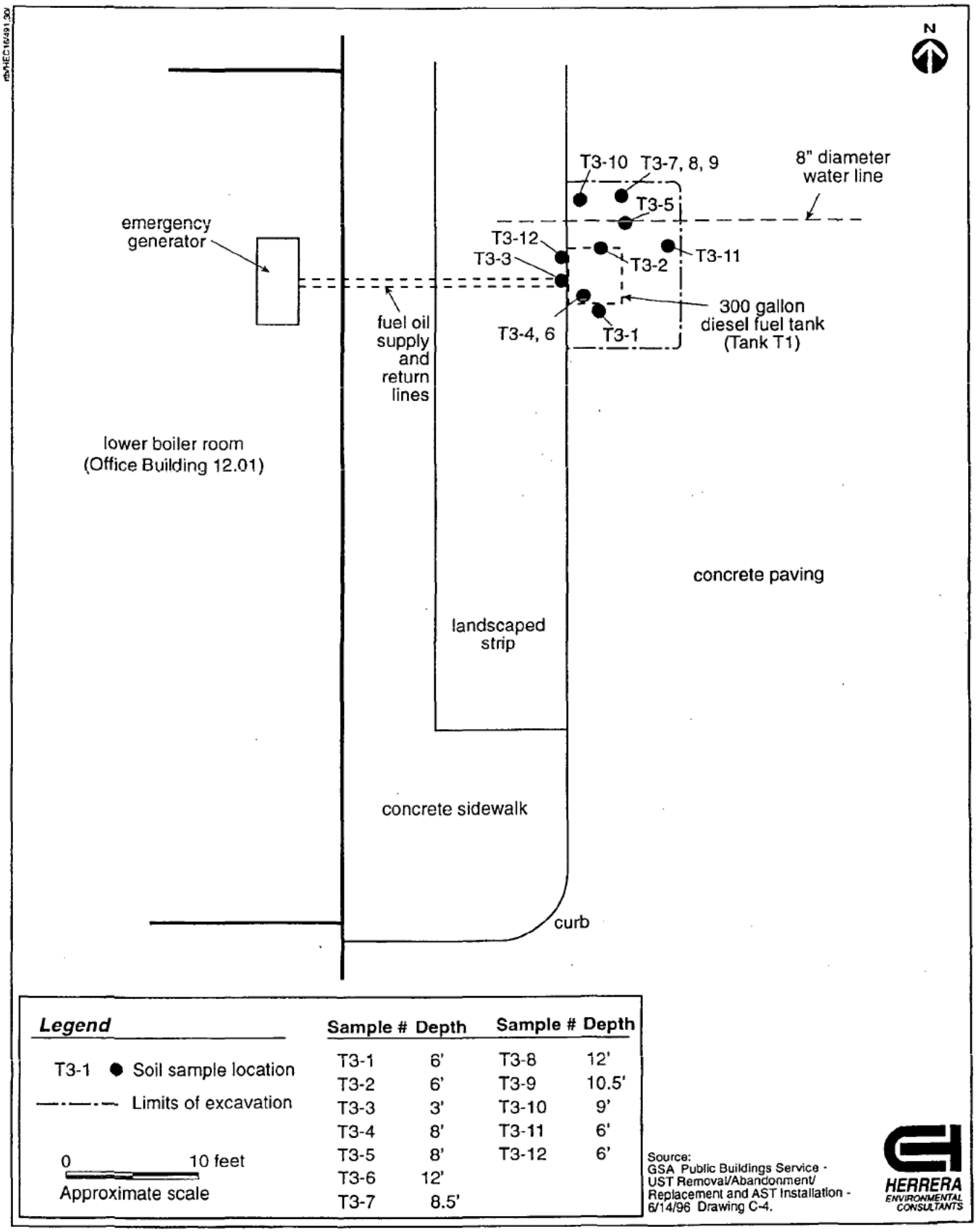


Figure 3. Tank T1 location map, Building 12.01 at Federal Center South, Seattle, Washington.

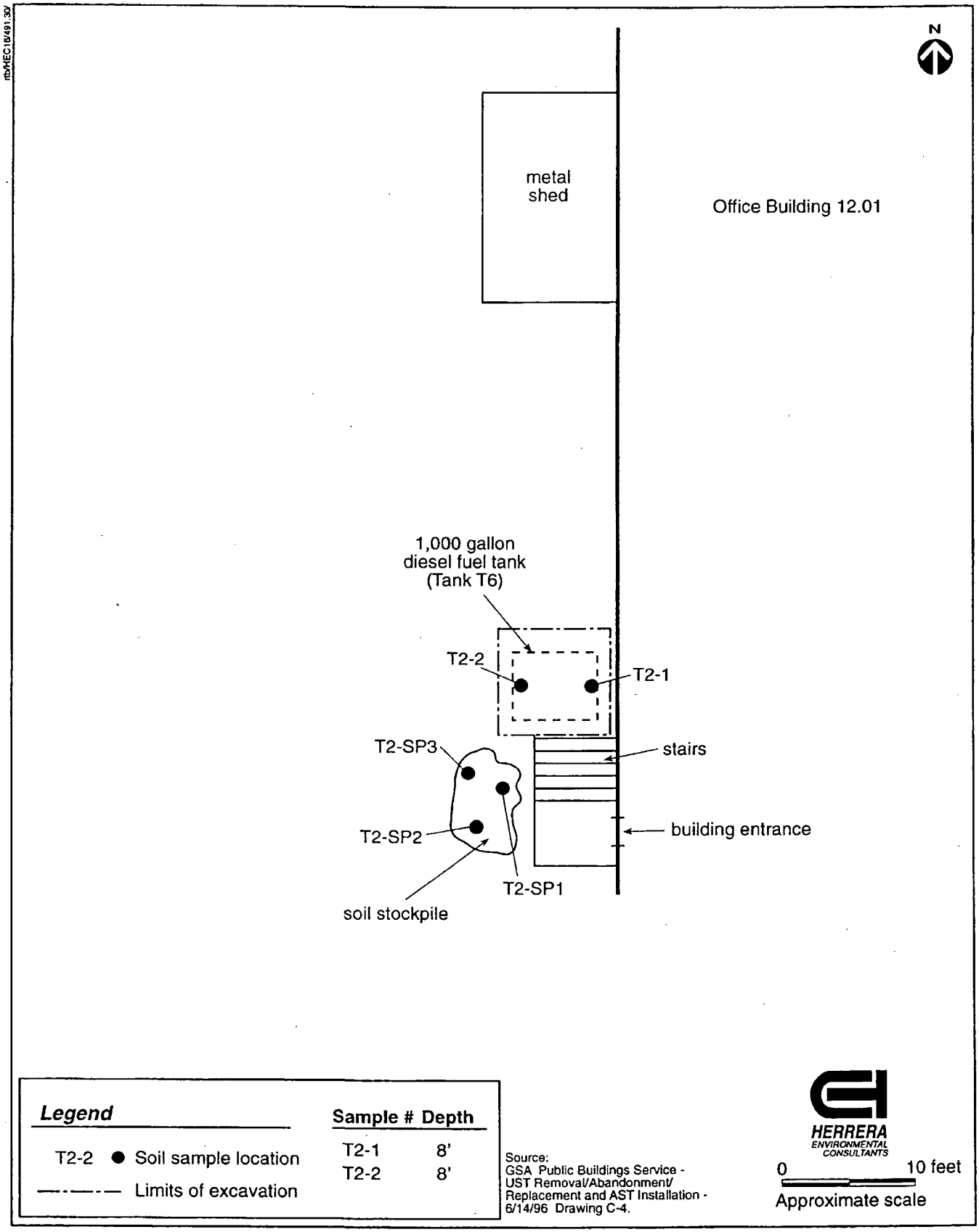


Figure 4. Tank T6 location map, Building 12.01 at Federal Center South, Seattle, Washington.

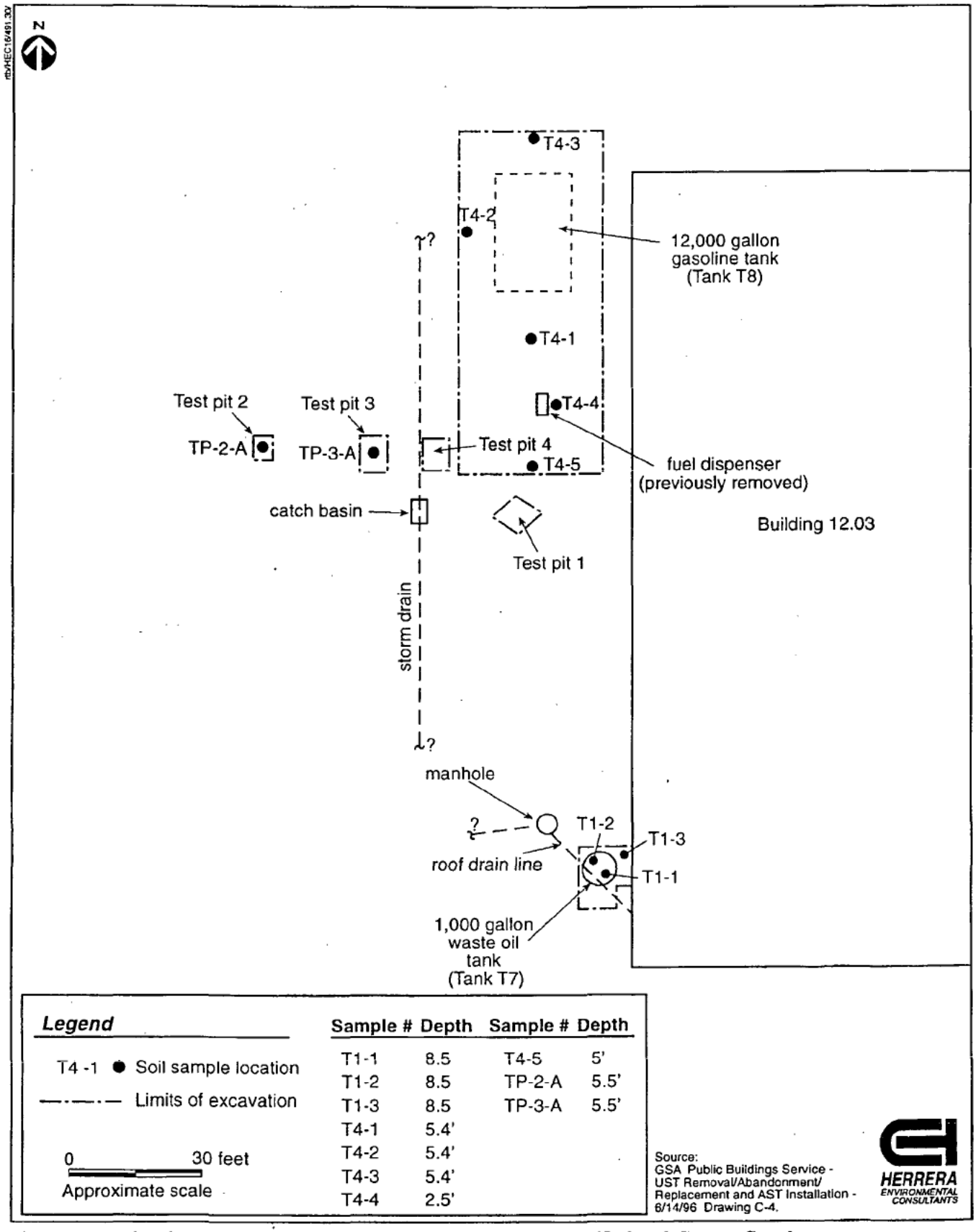


Figure 5. **Tanks T7 and T8 location map, Building 12.03 at Federal Center South, Seattle, Washington.**

Soil Description

Soil descriptions are based on observations of the tank excavation sidewalls and from test pits south and west of the excavation for tank T8. Soils in the immediate area of tank T1 were found to consist of brown medium sand grading to finer sand at six feet below ground surface (bgs) and continuing to the bottom of the deepest excavation at 12 feet bgs. Peat and clay were encountered in the northeast corner of the tank T1 excavation at a depth of 12 feet bgs.

The soil and backfill material in tank T6 consisted of sand with some gravel. Dark gray sand was present at about seven feet bgs in the tank T6 excavation, overlain with brown sand and some wood fragments. The dark gray sand also was present in the tank T8 excavation at about 5.5 feet bgs and overlain by fine to medium brown sand with some clay and wood fragments.

Ground water was encountered at 4.5 feet bgs in the tank T8 excavation and at 10.5 feet bgs in the T1 excavation. It was not encountered in the T6 or T7 excavations.

Underground Storage Tank Removal and Sampling

Thomas Sunday of E. P. Johnson Construction oversaw tank decommissioning activities, and Robert P. Harrison of Herrera Environmental Consultants performed the site assessment. Tank assessment and removal certifications from the International Fire Code Institute are included in Appendix A. The Washington State Department of Ecology 30-day notification form, closure and site assessment notice, and site assessment checklist are provided in Appendix B. A photographic activity log is provided in Appendix C.

The tank removal process occurred over a three-day period from May 19 to May 21, 1998 with additional excavation of T3 on May 27. On May 19th, the tanks were inerted, the overlying soils removed, and remaining product pumped from the tanks. Some of the diesel fuel was pumped into a temporary aboveground tank to supply the emergency generator at location T3.

On the morning of May 19, 1998, Robert Harrison of Herrera arrived onsite to perform the site assessment. At tank T8, soil contamination was evident near the dispenser piping. Holes were found in the suction piping, which ran about 15 feet from the tank to the dispenser. When the tank was removed from the excavation, a petroleum odor was evident and there was a sheen on the water in the excavation. About 80 cubic yards of soil were removed from the excavation and stockpiled immediately to the west. The excavation measured 43 feet by 18 feet to a depth of about seven feet bgs.

About 10 cubic yards of contaminated soil were removed from the excavation at tank T7. The tank was emptied and cleaned. Because this tank was initially to be closed in place, holes were drilled through the bottom and samples T1-1 and T1-2 collected about 10 inches below the tank. Sample T1-3 was collected from beneath the piping run. Because stained soil was present beneath the fiberglass tank, and it was determined that removal would not compromise the foundation of the adjacent building, the tank was removed on May 21, 1999. It was cut up and wiped clean again after the initial cleaning and disposed with other refuse from Federal Center South.

Tank T1 was removed and about 10 cubic yards of soil were stockpiled adjacent to the excavation. There was a faint petroleum odor in soil samples collected from the excavation. Samples T3-1 and T3-2 were collected from the ends of the excavation at depths of six feet. Sample T3-3 was collected beneath the piping at the center of the western sidewall at a depth of three feet.

A concrete pad was present beneath tank T6 to hold down the tank. Because this tank was closed in place, soil samples T2-1 and T2-2 were collected in holes drilled through each end of the tank. Three soil samples also were collected from the stockpile.

On May 20th the fuel dispenser area at tank T8 was overexcavated. The excavated area was about 23 feet long and 18 feet wide to a depth of five feet bgs. On May 21, 1998 four test pits were excavated west of the dispenser excavation.

Tanks T1 and T8 were transported to Schnitzer Steel Industries in Tacoma, Washington for recycling (bill of lading for the tanks is included in Appendix D).

Analytical Results

The alpha numeric sample identification system established for each tank location was based on the chronological order of tank sampling activity. It did not take into account the actual tank identification. Therefore, the samples are labeled as follows:

Tank T7	as	T1-1, T1-2, T1-3...
Tank T6	as	T2-1, T2-2, T2-3...
Tank T1	as	T3-1, T3-2, T3-3...
Tank T8	as	T4-1, T4-2, T4-3...

Tank T1

Fifteen soil samples were analyzed for the presence of diesel and heavier-than-diesel range (heavy oil) petroleum hydrocarbons by the NWTPH-Dx method. The analytical results are presented in Table 1 and the detailed laboratory reports and chain of custody records are provided in Appendix E. Sample locations are indicated in Figure 3. Elevated concentrations of diesel-range hydrocarbons occurred at both the north and south ends of the tank excavation at depths of about six feet below ground surface (bgs). Sample T3-3, was collected from the west sidewall at a depth of 3 feet bgs, approximately 12 inches beneath the fuel supply and return piping. Low levels of diesel-range and heavy oil-range hydrocarbons of 98 ppm and 60 ppm, respectively were detected.

Three hand auger samples were collected to determine the extent of hydrocarbon contamination at the base of the excavation. Sample T3-5 was collected north of the tank at a depth of eight feet bgs. Diesel-range hydrocarbons were detected in this sample at a concentration of 3,700 mg/kg. Two other hand auger samples (T3-4 and T3-6) were collected at the southwest corner of the excavation at respective depths of eight and 12 feet bgs. Petroleum hydrocarbons were not detected in either sample.

An additional eight cubic yards of soil were removed from the north end of the excavation to approximately 8.5 feet, bgs. Samples T3-7 through T3-12 were collected to confirm removal adequacy. Diesel-range hydrocarbons were detected in sample T3-7 at a concentration of 35 mg/kg. No diesel- or heavy oil-range petroleum hydrocarbons were detected in the other five samples collected from the final excavation.

Analytical results of two of the three samples collected from the soil stockpile exceeded MTCA method A cleanup criteria for diesel-range hydrocarbons at 560 and 180 mg/kg, respectively. Petroleum hydrocarbons also were detected in the heavy oil-range at a concentration of 350 mg/kg in each sample. The soil from the stockpile was transported and disposed offsite along with contaminated soil removed from other tank excavations. The bill of lading for this soil, is provided in Appendix D.

Tank T6

Five soil samples were analyzed for the presence of diesel- and heavy oil-range petroleum hydrocarbons by the NWTPH-Dx method. The analytical results are presented in Table 1 and

the detailed laboratory reports and chain of custody records are provided in Appendix D. Sample locations are indicated in Figure 4. Diesel-range hydrocarbons were not found above the detection limit in samples T2-1 and T2-2, collected through each end of the tank. Heavy oil-range hydrocarbons were detected at concentrations below MTCA cleanup criteria.

Table 1. Summary of laboratory results for petroleum hydrocarbon analyses of soil samples collected during site assessment at Tanks T1, T6, and T7.

Sample Identification	Source	Date Sampled	Diesel-Range TPH	Heavy Oil-Range TPH
MTCA method A cleanup level			*200*	*200*
Tank T1 Samples				
T3-1	excavation	5/19/98	**550**	95
T3-2	excavation	5/19/98	**17,000**	**1,800**
T3-3	excavation	5/19/98	98	60
T3-4	excavation	5/21/98	ND (27)	ND (54)
T3-5	excavation	5/21/98	**3,700**	180
T3-6	excavation	5/21/98	ND (33)	ND (67)
T3-7	excavation	5/27/98	35	ND (53)
T3-8	excavation	5/27/98	ND (39)	ND (78)
T3-9	excavation	5/27/98	ND (32)	ND (65)
T3-10	excavation	5/27/98	ND (27)	ND (54)
T3-11	excavation	5/27/98	ND (27)	ND (54)
T3-12	excavation	5/27/98	ND (28)	ND (56)
T3-SP-1	stockpile	5/19/98	ND (26)	89
T3-SP-2	stockpile	5/19/98	**560**	**350**
T3-SP-3	stockpile	5/19/98	180	**350**
Tank T6 Samples				
T2-1	excavation	5/19/98	ND (27)	90
T2-2	excavation	5/19/98	ND (27)	61
T2-SP-1	excavation	5/19/98	ND (26)	ND (52)
T2-SP-2	stockpile	5/19/98	ND (27)	140
T2-SP-3	stockpile	5/19/98	30	**250**
Tank T7 Samples				
T1-1	excavation	5/19/98	**4,000**	**11,000**
T1-2	excavation	5/19/98	**4,700**	**12,000**
T1-3	excavation	5/19/98	55	**360**

Values reported in mg/kg (dry weight basis).
ND – Constituent not detected (detection limit).
Analytical methods: NWTPH-Dx for diesel- and heavy oil-range hydrocarbons
MTCA – Model Toxics Control Act cleanup regulation (Department of Ecology, publication No. 94-06, 1996).
Concentrations presented in bold-face type exceed MTCA cleanup regulations

Diesel-range hydrocarbons were not detected in stockpile samples T2-SP-1 or T2-SP-2, but a concentration of 10 mg/kg was identified in sample T2-SP-3. A heavy-oil concentration of 250 mg/kg detected in sample T2-SP-3 was the only concentration in the three samples that exceeded MTCA method A cleanup criteria. Soil from the stockpile was transported and disposed offsite along with contaminated soil removed from the other tank excavations. The bill of lading for this soil, is provided in Appendix D.

Tank T7

Three soil samples were analyzed for the presence of diesel- and heavy oil-range petroleum hydrocarbons by the NWTPH-Dx method. The analytical results are presented in Table 1 and the detailed laboratory reports and chain of custody records are provided in Appendix D. Sample locations are indicated in Figure 5. Samples T1-1 and T1-2 collected through the bottom of the tank had respective diesel-range hydrocarbon concentrations of 4,000 and 4,700 mg/kg and heavy oil-range hydrocarbon concentrations of 11,000 and 12,000 mg/kg. Sample T1-3, collected from beneath the fuel pipe, was found to have a diesel-range concentration of 55 mg/kg and a heavy oil-range concentration of 360 mg/kg. MTCA method A cleanup criteria were exceeded for each of the three samples.

These three samples were also analyzed for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver (Table 2). MTCA Method A cleanup criteria were not exceeded in any of the sample results.

Table 2. Summary of laboratory results metals analyses of soil samples collected during Tank T7 site assessment.

Sample Identification	Date Sampled	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MTCA method A cleanup level		*20*		*2.0*	*100*	*250*	*1.0*		
Tank T7 Samples									
T1-1	5/19/98	ND (11)	13	ND (0.53)	15	ND (5.3)	ND (0.26)	ND (11)	3.8
T1-2	5/19/98	ND (10)	26	ND (0.52)	22	6.7	ND (0.26)	ND (10)	ND (0.52)
T1-3	5/19/98	ND (10)	22	ND (0.51)	12	28	ND (0.26)	ND (10)	ND (0.51)

Values reported in mg/kg (dry weight basis).
ND – Constituent not detected (detection limit).
Analytical methods: EPA method 7417A for mercury and 6010B for remaining metals.
MTCA – Model Toxics Control Act cleanup regulation (Department of Ecology, publication No. 94-06, 1996).

Because concentrations of diesel-range hydrocarbons exceeding MTCA cleanup criteria were detected beneath the tank, additional excavation and monitoring well installation will occur in this area.

Tank T8

Twelve soil samples were analyzed for the presence of gasoline-range petroleum hydrocarbons by the NWTPH-G method; benzene, toluene, ethylbenzene and total xylenes (BTEX) by the 8021 method; and lead by the 6010 method. Analytical results are presented in Table 3. Detailed laboratory reports and chain of custody records are provided in Appendix D. Sample locations are indicated in Figure 5.

Samples T4-1, T4-2 and T4-3 were collected from the south, west, and north sides of the excavation, respectively. Gasoline-range hydrocarbons and BTEX were not detected in samples T4-1 and T4-2. BTEX also was not detected in sample T4-3, but gasoline-range hydrocarbons were detected at a concentration of 350 mg/kg. The MTCA method A cleanup level for gasoline-range hydrocarbons is 100 mg/kg.

Table 3. Summary of laboratory results for petroleum hydrocarbon, BTEX, and lead analyses of soil samples collected during Tank T8 site assessment.

Sample Identification	Source	Date Sampled	Gasoline-Range TPH	Benzene	Toluene	Ethylbenzene	Total Xylenes	Lead
MTCA method A cleanup level			*100*	*0.5*	*40*	*20*	*20*	*250*
Tank T8 Samples								
T4-1	Excavation	5/19/98	ND (5.7)	ND (0.057)	ND (0.057)	ND (0.057)	ND (0.057)	23
T4-2	Excavation	5/19/98	ND (5.3)	ND (0.053)	ND (0.053)	ND (0.053)	ND (0.053)	7.8
T4-3	Excavation	5/19/98	**350**	ND (0.058)	ND (0.058)	ND (0.058)	ND (0.058)	27
T4-4	Dispenser	5/19/98	**120**	0.13	1.1	10	**66**	25
T4-5	Dispenser	5/21/98	**700**	ND (0.27)	ND (0.27)	10	15	ND (5.3)
T4-SP-1	Stockpile	5/19/98	ND (5.3)	ND (0.053)	ND (0.053)	ND (0.053)	ND (0.053)	19
T4-SP-2	Stockpile	5/19/98	ND (5.3)	ND (0.053)	ND (0.053)	ND (0.053)	ND (0.053)	31
T4-SP-3	Stockpile	5/19/98	ND (5.3)	ND (0.053)	ND (0.053)	ND (0.053)	ND (0.053)	10
T4-SP-4	Stockpile	5/21/98	**2,100**	ND (0.27)	2	19	**101**	25
T4-SP-5	Stockpile	5/21/98	**1,100**	ND (0.054)	0.32	5	**28**	25
TP-2-A	Test Pit	5/21/98	ND (6.0)	ND (0.060)	ND (0.060)	ND (0.060)	ND (0.053)	ND (6.0)
TP-3-A	Test Pit	5/21/98	ND (5.9)	ND (0.059)	ND (0.059)	ND (0.059)	ND (0.059)	ND (5.9)

Values reported in mg/kg (dry weight basis).
ND – Constituent not detected (detection limit).
Analytical methods: NWTPH-G for gasoline
EPA method 8021 for BTEX (benzene, toluene, ethylbenzene and xylenes)
EPA method 6010B for total lead.
MTCA – Model Toxics Control Act cleanup regulation (Department of Ecology, publication No. 94-06, 1996).
Concentrations presented in bold-face type exceed MTCA cleanup regulations

Samples T4-4 and T4-5 were collected by the fuel dispenser. Gasoline-range hydrocarbons were detected in these samples at respective concentrations of 120 and 700 mg/kg. BTEX samples also were detected in each of these samples, but only total xylenes exceeded the MTCA cleanup criteria in sample T4-4 (66 mg/kg).

Five soil samples were collected from the soil stockpile, T4-SP-1 through T4-SP-5. Neither gasoline-range hydrocarbons nor BTEX were detected in samples T4-SP-1 through T4-SP-3. Gasoline-range hydrocarbons were detected at respective concentrations of 2,100 and 1,100 mg/kg in samples T4-SP-4 and T4-SP-5. Toluene, ethylbenzene, and total xylenes also were detected in these samples. Total xylenes exceeded the MTCA cleanup criteria, with concentrations of 101 and 28 mg/kg in samples T4-SP-4 and T4-SP-5, respectively.

Two soil samples, TP-2-A and TP-3-A were collected from test pits 2 and 3 at 5.5 feet bgs, excavated west of the dispenser area. Gasoline-range hydrocarbons and BTEX were not detected in these samples.

Total lead concentrations ranged from non-detected to 31 mg/kg in twelve samples collected during the Tank T8 removal and excavation. The MTCA cleanup level for lead is 250 mg/kg.

Ground water was encountered at a depth of about 5.5 feet bgs in the tank excavation. A single water sample was collected from the excavation and neither gasoline-range hydrocarbons or BTEX constituents were detected.

Because concentrations of gasoline-range hydrocarbons and total xylenes exceeded cleanup criteria at the water table, particularly in the dispenser area, additional excavation and monitoring well installation will occur in this area.

The soil from the stockpile was transported and disposed offsite along with contaminated soil removed from the other tank excavations. The bill of lading for this soil, is provided in Appendix D.

Quality Assurance and Quality Control

All soil samples were placed into containers using clean stainless-steel spoons washed with laboratory grade detergent (Alconox™) followed by a tap water rinse, an isopropyl alcohol rinse, and a final deionized distilled water rinse. The ground water sample was collected by filling sample containers directly from water in the excavation. Samples were placed into clean glass containers provided by the laboratory.

After collection, samples were immediately placed into a cooler with ice packs and kept cool. The samples were transported to the laboratory under chain-of-custody protocols.

The analysis of 23 soil samples for NWTPH-Dx; three soil samples for metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver); and 12 soil samples and one water sample for NWTPH-Gx/BTEX and lead were determined to be acceptable for use, based on the following criteria:

Method Blanks—There were no contaminants in blank samples above the instrument detection limit.

Surrogate Recoveries—Seven samples did not have surrogate recovery data available, because sample dilution was required. The percent recoveries of surrogates for the remaining samples were within acceptable control limit ranges (65 percent to 100 percent).

Laboratory Duplicates—The relative percent difference (RPD) for some of the samples analyzed in duplicate could not be calculated because neither sample had detectable concentrations. The RPD was calculated for seven duplicate samples and the results for six samples were within the upper control limit (UCL) ranging from 0.45 to 18 percent. An RPD of 40 percent was calculated for a duplicate sample pertaining to diesel analyses (T3-4, 5 and 6), exceeding the UCL of 24 percent. Because the surrogate recoveries, spike blank, and spike blank duplicate were all within control limits for this sample set, these data were deemed acceptable.

Matrix Spikes (MS) and Matrix Spike Duplicates (MSD)—The percent recoveries for the matrix spikes were within control limits for all samples. The RPD calculated from the MS/MSD samples ranged from 0 percent to 7.8 percent, all within established control limits.

Laboratory Control Spiked Samples—MS/MSD samples are not required for NWTPH-Dx analyses, but a spiked blank and duplicate were analyzed by the lab as an in-house check for these sample sets. The surrogate recoveries ranged from 102 to 118 percent and the RPDs ranged from 0.89 to 8.1 percent, all within acceptable control limits.

Conclusions

Based on the results of site assessment activities, it appears that the former 1,000 gallon UST (T6) and the 300 gallon UST (T1) each providing diesel fuel for two different emergency generators at Building 12.01 have not resulted in any adverse impacts on surrounding soil or ground water. Tank T6 was successfully closed in place and tank T1 was removed from the ground and recycled.

Releases from 1,000 gallon waste oil tank T7, and 12,000 gallon gasoline tank T8 were reported to Ecology on May 20, 1998. Additional site characterization, soil excavation, monitoring well installation, and both soil and ground water sampling will be performed in this area.

Limitations

This report has been prepared for exclusive use by the General Services Administration. The analyses and conclusions included in this report are based on conditions encountered at the time of our field investigation and our experience and judgment. Herrera Environmental Consultants cannot be responsible for interpretation by others of the data contained in this report.

Herrera's services were performed with due diligence in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the area. No other warranty, express or implied, is made.

APPENDIX A

Tank Assessment and Removal Certification

International Fire Code Institute

THOMAS H. SUNDAY

is CERTIFIED in UNDERGROUND STORAGE TANK DECOMMISSIONING

The International Fire Code Institute attests that the individual named on this certificate has satisfactorily demonstrated knowledge of national underground storage tank regulations and industry standards in effect on this date in the category shown above by successfully completing the prescribed written examination.

Witnessed by our hand

Certificate No. 0876378-26

Issued March 7, 1998

For the International Fire Code Institute

Chairman

INTERNATIONAL FIRE CODE INSTITUTE 4816

(b) (6)

ROBERT P. HARRISON
[redacted]

SSN: [redacted]
BDATE:
ASI ID: (b) (6)

EXAMINATION: WA SITE ASSESS.
EXAM DATE: 07/28/95

EXAMINATION RESULT: **PASS**

Congratulations! You have passed the Washington UST Site Assessment examination. This achievement attests to your knowledge of Washington site assessment practices and regulations in effect on this date.

Site Assessors in Washington are not required to register with the Department of Ecology. However, Site Assessors may be required to present this letter to the state inspectors as evidence of successful completion of this examination. Additional information on state requirements may be obtained from the Washington Department of Ecology, Toxics Cleanup Program UST Section, P.O. Box 47655, Olympia, WA 98504-765[illegible] (phone 360-407-7210). Retesting every two years may be required by this agency.

Please notify IFCI of any change in your address. Thank you for your participation in the Washington UST Site Assessment examination.

IFCI Certification Section
5360 Workman Mill Road
Whittier, CA 90601-2298

(310)- 699-0124

DIAGNOSTIC REPORT ID: (b) (6) WA SITE ASSESS. 07/28/95

EXAMINATION	PASSING SCORE	YOUR SCORE	RESULT
WA SITE ASSESS.	75	PASSED	PASS

CONTENT AREA	LOW	HIGH
HEALTH/SAFETY		
BACKGROUND DATA		
FIELD OBSERVE.		
SAMPLING PLAN		
CONDUCT SAMPLING		
SUBMIT SAMPLES		
EVALUATE RESULTS		

APPENDIX B

Tank Removal and Closure Documentation

UNDERGROUND STORAGE TANK
Closure and Site Assessment Notice

See back of form for instructions

FOR OFFICE USE ONLY
Site ID #:
Owner ID #:

Please ✓ the appropriate box(es)
☐ Temporary Tank Closure ☐ Change-In-Service ☒ Permanent Tank Closure ☒ Site Check/Site Assessment

Site Information

Site ID Number 10042
(Available from Ecology if the tanks are registered)
Site/Business Name GSA FEDERAL CENTER SOUTH
Site Address 4735 E. MARGINAL WAY SOUTH (Street)
City/State SEATTLE, WA.
Zip Code 98134 Telephone (206) 764-5902
Owner's Signature for GSA

Owner Information

(This form will be returned to this address)
UST Owner/Operator GENERAL SERVICES ADMIN. DONNA SWEENEY
Mailing Address 4735 E. MARGINAL WAY SOUTH (Street)
(P.O. Box)
City/State SEATTLE, WA.
Zip Code 98134 Telephone (206) 764-5902

Tank Closure/Change-In-Service Company

Service Company E.P. JOHNSON CONSTRUCTION + ENVIRONMENTAL, INC.
Certified Supervisor THOMAS H. SUNDAY JR. Decommissioning Certification No. 0876378-26
Supervisor's Signature Thomas H. Sunday Jr.
Address 1320 N. OREGON AVE. (Street) (P.O. Box)
PASCO (City) WA. (State) 99301 (Zip Code) Telephone (509) 544-9464

Site Check/Site Assessor

Certified Site Assessor ROBERT P. HARRISON for Herrera Environmtal
Address 2200 6TH AVE STE 601 (Street) (P.O. Box)
City SEATTLE State WA Zip Code 98121 Telephone (206) 441-9080

Tank Information

Tank ID	Closure Date	Closure Method	Tank Capacity	Substance Stored
T-1	5/27/98	REMOVAL	300	DIESEL
T-6	5/26/98	IN-PLACE	1000	DIESEL
T-7	5/21/98	REMOVAL	1000	USED OIL
T-8	5/19/98	REMOVAL	12,000	GASOLINE

Contamination Present at the Time of Closure

☒ Yes ☐ No ☐ Unknown

Check unknown if no obvious contamination was observed and sample results have not yet been received from analytical lab.

☒ Yes ☐ No

If contamination is present, has the release been reported to the appropriate regional office?

To receive this document in an alternative format, contact the TOXICS CLEANUP PROGRAM at 1-800-826-7716 (voice) OR (360) 407-6006 (TDD).
ECY 020-94 (Rev. 6/95)

Instructions

AFTER COMPLETING THIS FORM, RETURN TO:

TOXICS CLEANUP PROGRAM
DEPARTMENT OF ECOLOGY
P.O. BOX 47655
OLYMPIA, WA 98504-7655

Please Read Carefully

This form is to be completed by the tank owner and submitted to Ecology within 30 days of tank closure. Mark the appropriate box(es) for temporary tank closure, permanent tank closure, change-in-service, or site assessment.

Permanent Closure and Change-In-Service require a site assessment be performed.

Site and Owner Information

Fill in the site and owner information. Include the Ecology site number, if known; also, be sure to provide telephone numbers so that any problems can be resolved quickly. **The tank owner MUST sign this form.**

Tank Closure/Change-In-Service Company and Site Check/Site Assessor

List the closure company and fill in the site assessor information for permanent closure or change-in-service. Ask to see the closure company supervisor's IFCI Certification and make sure that the certified supervisor signs this form.

Please note: **Individuals performing services MUST be certified by the International Fire Code Institute (IFCI), or other nationally recognized association by which they demonstrate appropriate knowledge pertaining to USTs or have passed another qualifying exam approved by the Department.**

Tank Information and Contamination Present at Time of Closure

Please fill in the tank information requested using tank ID numbers previously reported to Ecology. In the column entitled "Closure Method," indicate what manner of closure was used, such as closure in place or removal. Check the appropriate box(es) indicating if contamination is present and has been reported. Contamination found or suspected at the site must be reported to the appropriate Ecology regional office within 24 hours [see below for telephone numbers]. **If contamination is confirmed, a site characterization report must be submitted to the regional office within 90 days; if contamination is not confirmed, then this form, a site assessment checklist, and a site assessment report must be submitted to the above address within 30 days.**

Central	Eastern	Southwest	Northwest
(509) 574-2490 (voice)	(509) 456-2926 (voice)	(360) 407-6300 (voice)	(206) 649-7000 (voice)
(509) 454-7673 (TDD)	(509) 458-2055 (TDD)	(360) 407-6306 (TDD)	(206) 649-4259 (TDD)

The following tanks are exempt from notification requirements:

- Farm or residential tanks, 1,100 gallons or less, used to store motor fuel for personal or farm use only. The fuel must not be for resale or used for business purposes.
- Tanks used for storing heating oil that is used on the premises where the tank is located.
- Tanks with a capacity of 110 gallons or less.
- Equipment or machinery tanks such as hydraulic lifts or electrical equipment tanks.
- Emergency overflow tanks, catch basins, or sumps.

For more information, call toll free in the state of Washington 1-800-826-7716 (Message).

UNDERGROUND STORAGE TANK
Site Check/Site Assessment Checklist

For Office Use Only	
Owner #	
Site #	

INSTRUCTIONS:

When a release has **not** been confirmed and reported, this Site Check/Site Assessment Checklist must be completed and signed by a person registered with Ecology. **The results of the site check or site assessment must be included with this checklist.** This form must be submitted to Ecology at the address shown below within 30 days after completion of the site check/site assessment.

SITE INFORMATION: Include the Ecology site ID number if the tanks are registered with Ecology. This number may be found on the tank owner's invoice or tank permit.

TANK INFORMATION: Please list all tanks for which the site check or site assessment is being conducted. Use the owner's tank ID numbers if available, and indicate tank capacity and substance stored.

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT: Please check the appropriate item.

CHECKLIST: Please initial each item in the appropriate box.

SITE ASSESSOR INFORMATION: This form must be signed by the registered site assessor who is responsible for conducting the site check/site assessment.

Underground Storage Tank Section
Department of Ecology
P. O. Box 47655
Olympia, WA 98504-7655

SITE INFORMATION

Site ID Number (on invoice or available from Ecology if the tanks are registered): _____

Site/Business Name: GEN. SERVICES ADMINISTRATION FEDERAL CENTER SOUTH

Site Address: 4735 E. MARGINAL WAY S. (Street) Telephone: (206) 764-5902

SEATTLE, WA 98134 (City / State / ZIP-Code)

TANK INFORMATION

Tank ID No.	Tank Capacity	Substance Stored
T-1	300 GAL.	DIESEL
T-6 (CLOSURE IN-PLACE)	1,000 GAL.	DIESEL
T-7	1,000 GAL.	WASTE OIL
T-8	12,000 GAL.	GASOLINE

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ____ Investigate suspected release due to on-site environmental contamination
- ____ Investigate suspected release due to off-site environmental contamination.
- ____ Extend temporary closure of UST system for more than 12 months.
- ____ UST system undergoing change-in-service.
- T-6 UST system permanently closed-in-place.
- X UST system permanently closed with tank removed.
- ____ Abandoned tank containing product.
- ____ Required by Ecology or delegated agency for UST system closed before 12/22/88.
- ____ Other (describe): _____

CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

		YES	NO
.	The location of the UST site is shown on a vicinity map.	RPH	
.	A brief summary of information obtained during the site inspection is provided. (see Section 3.2 in site assessment guidance)	RPH	
.	A summary of UST system data is provided. (see Section 3.1)	RPH	
.	The soils characteristics at the UST site are described. (see Section 5.2)	RPH	
.	Is there any apparent groundwater in the tank excavation?	RPH	
.	A brief description of the surrounding land use is provided. (see Section 3.1)	RPH	
.	Information has been provided indicating the number and types of samples collected, methods used to collect and analyze the samples, and the name and address of the laboratory used to perform the analyses.	RPH	
.	A sketch or sketches showing the following items is provided:		
	- location and ID number for all field samples collected	RPH	
	- groundwater samples distinguished from soil samples (if applicable)	RPH	
	- samples collected from stockpiled excavated soil	RPH	
	- tank and piping locations and limits of excavation pit	RPH	
	- adjacent structures and streets	RPH	
	- approximate locations of any on-site and nearby utilities	RPH	
	If sampling procedures different from those specified in the guidance were used, has justification for using these alternative sampling procedures been provided? (see Section 3.4)	NA	
).	A table is provided showing laboratory results for each sample collected including; sample ID number, constituents analyzed for and corresponding concentration, analytical method and detection limit for that method.	RPH	
.	Any factors that may have compromised the quality of the data or validity of the results are described.	RPH	
2.	*The results of this site check/site assessment indicate that a confirmed release of a regulated substance has occurred.*	RPH	I

SITE ASSESSOR INFORMATION

ROBERT PERRY HARRISON — HERRERA ENVIRONMENTAL CONSULTANTS

Person registered with Ecology — Firm Affiliated with

Business Address: 2200 6TH AVE, STE 601 — Telephone: (206) 441-9080

Street

SEATTLE, WA 98121

City — State — ZIP+Code

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

2/2/99

Date

Signature of Person Registered with Ecology

ECOLOGY

UNDERGROUND STORAGE TANK
30 DAY NOTICE

See back of form for instructions

Please ✓ the appropriate box: ☐ Intent to Install ☐ Intent to Close ☒ Both

FOR OFFICE USE ONLY
Site ID #:
Owner ID #:
Once validated by Ecology, this form serves as your temporary permit for the tanks listed below.

Site Information

Site ID Number 10047 (Available from Ecology if the tanks are registered)

Site/Business Name GSA FEDERAL CENTER SOUTH

Site Address (Street) 4735 E. MARGINAL WAY SOUTH

City/State SEATTLE, WA.

Zip Code 98134 Telephone (206) 764-5902

Owner Information

(This form will be returned to this address)

UST Owner/Operator GENERAL SERVICES ADMIN. DONNA SWEENEY

Mailing Address (Street) 4735 E. MARGINAL WAY SOUTH

(P.O. Box) —

City/State SEATTLE, WA.

Zip Code 98134 Telephone (206) 764-5902

Tank Installation Company (If known). Fill out this section ONLY if tanks are being installed.

Service Company E.P. JOHNSON CONSTRUCTION Contact Name THOMAS H. SUNDAY JR.

Address (Street) 1320 N. OREGON AVENUE (P.O. Box)

City PASCO State WA. Zip Code 99301 Telephone (509) 544-9464

Tank Permanent Closure Company (If known). Fill out this section ONLY if tanks are being closed.

Service Company E.P. JOHNSON CONSTRUCTION Contact Name THOMAS H. SUNDAY JR.

Address (Street) 1320 N. OREGON AVENUE (P.O. Box)

City PASCO State WA. Zip Code 99301 Telephone (509) 544-9464

Tank Closure Information

Fill out this section ONLY if tanks are being closed.

Tank Installation Information

Fill out this section ONLY if tanks are being installed.

Tank ID	Projected Closure Date	Tank Capacity	Substance Stored	Date Tank Last Used	Is There Product in the Tank (Yes/No)	If No, Date Tank Was Pumped	Tank ID	Approx. Install Date
T1	5/20/98	300	HEAT OIL	PRESENT	YES	N/A	T1	5/28/98
T6	5/20/98	1000	HEAT OIL	UNK	UNK	UNK	N/A	N/A
T7	5/22/98	1000	UNK	UNK	UNK	UNK	N/A	N/A
T8	5/27/98	1000	GASOLINE	UNK	UNK	UNK	N/A	N/A

To receive this document in an alternative format, contact the TOXICS CLEANUP PROGRAM at 1-800-826-7716 (VOICE) OR (360) 407-6006 (TDD).

ECY 070-15 (Rev. 4/95)

Instructions

AFTER COMPLETING THIS FORM, RETURN TO:

TOXICS CLEANUP PROGRAM
DEPARTMENT OF ECOLOGY
P.O. BOX 47655
OLYMPIA, WA 98504-7655

Please Read Carefully

Check the appropriate box for tank closure, tank installation, or both.

Site and Owner Information

Fill in the site and owner information. Please include the Ecology site number for tank closures; also, be sure to provide telephone numbers so that any problems can be resolved quickly. Confirmation of receipt of this form and the temporary permit will be returned to the owner.

Tank Installation Company

List the installation company, if known. Upon receiving your completed form, Ecology will validate it and return it to the owner. This validated form is your temporary permit and will allow you to receive product. **A new notification form must be submitted to the Department of Licensing within 30 days of installation in order to receive a Master Business License with the appropriate tank permit endorsement(s).**

Tank Permanent Closure Company

List the closure company, if known. Upon receiving a completed 30 day closure form, Ecology will stamp the date received on the form and return a copy to the owner.

Contact your local fire marshall and planning department prior to tank closure to find out if any additional permits are required by county or other local jurisdictions. Compliance with the State Environmental Policy Act (SEPA) Rules, Chapter 197-11 WAC, may be necessary.

Closure may proceed 30 days after the date stamped on the form. A site assessment is required at the time of closure. Contamination found or suspected at the site must be reported to the appropriate Ecology regional office within 24 hours. If the contamination is confirmed, a site characterization report must be submitted to the regional office within 90 days; if contamination is not confirmed, a site assessment report must be submitted to the above address within 30 days.

Please note: **Individuals performing services MUST be certified by the International Fire Code Institute (IFCI), or other nationally recognized association by which they demonstrate appropriate knowledge pertaining to USTs or have passed another qualifying exam approved by the Department.**

Tank Information

List tanks to be installed or closed. Please report tank ID number(s) for tanks to be closed and assign new tank ID number(s) to tanks being installed. Do not use existing numbers from closed tanks.

The following tanks are exempt from notification requirements:

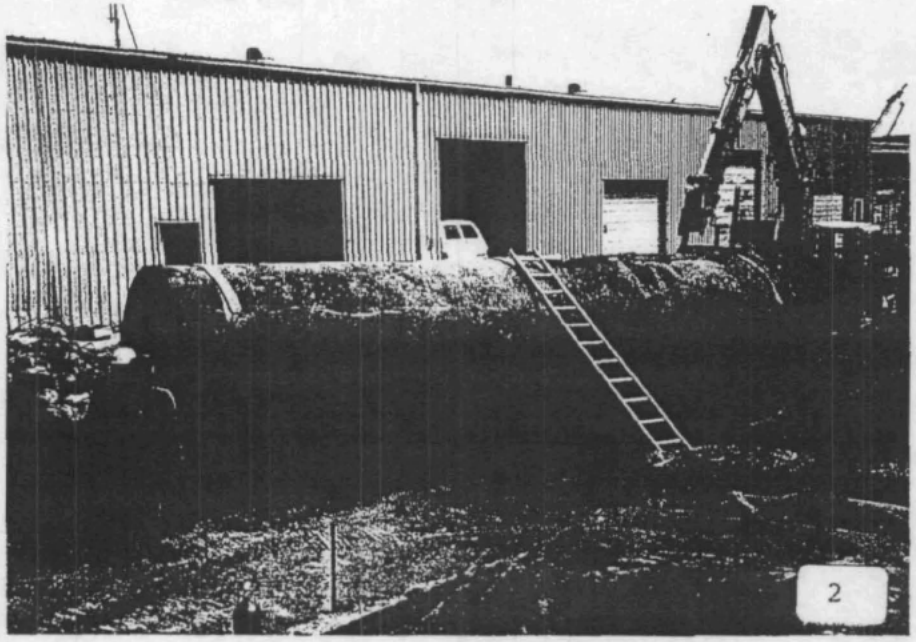
- Farm or residential tanks, 1,100 gallons or less, used to store motor fuel for personal or farm use only. The fuel must not be for resale or used for business purposes.
- Tanks used for storing heating oil that is used on the premises where the tank is located.
- Tanks with a capacity of 110 gallons or less.
- Equipment or machinery tanks such as hydraulic lifts or electrical equipment tanks.
- Emergency overflow tanks, catch basins, or sumps.

APPENDIX C

Photographic Log

Underground Tank Closure Activities
Federal Center South Seattle, Washington

Photo Number	Photo Description
1	Tank T8, excavation, looking south
2	Tank T8, 12,000 gallon gasoline, looking southeast
3	Tank T8 excavation, looking south
4,5	Tank T8 excavation
6	Tank T8 excavation, looking northwest
7,8	Tank T8, 12,000 gallon gasoline tank
9	Inside of Tank T8
10	Soil stockpile for tank T8, looking south
11	Dispenser excavation, south of tank T8, looking north
12	Dispenser excavation, looking east
13	Dispenser excavation, looking southeast
14	Dispenser excavation, looking south
15	Dispenser excavation, looking southwest
16	Dispenser excavating, looking west
17	Soil stockpile from tank T8 and dispenser excavation, looking southwest
18	Tank T1 excavation immediately following tank removal, looking west
19	Tank T1 and the Tank 8 excavation, looking southeast
20	8" water pipe in Tank T1 excavation, looking north
21	Tank T1 excavation following PCS removal
22	Opening cut in Tank T7 for access to tank interior
23	Interior of Tank T7 after cleaning showing location of sample T1-1
24	Closeup of a corrosion hole in Tank T8.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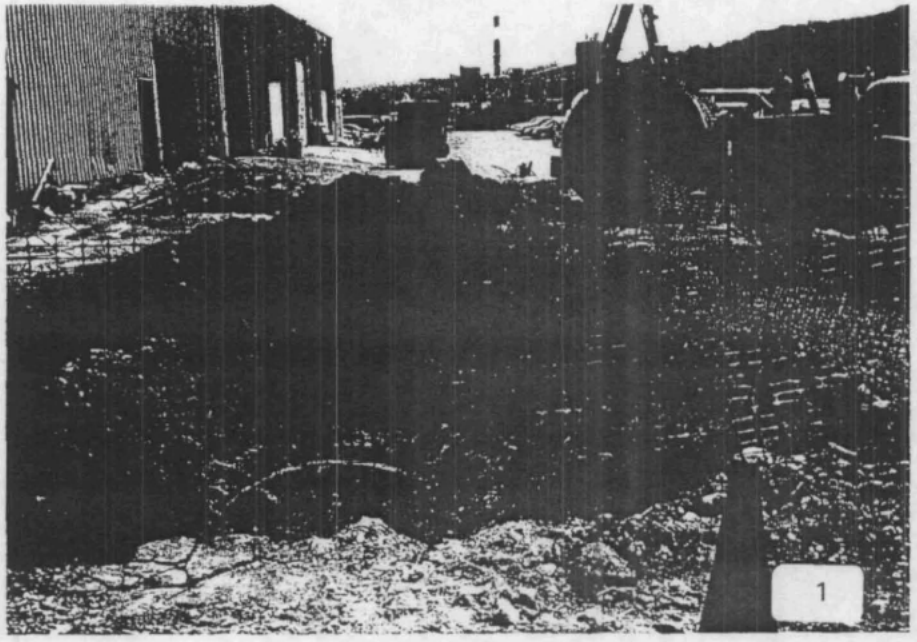
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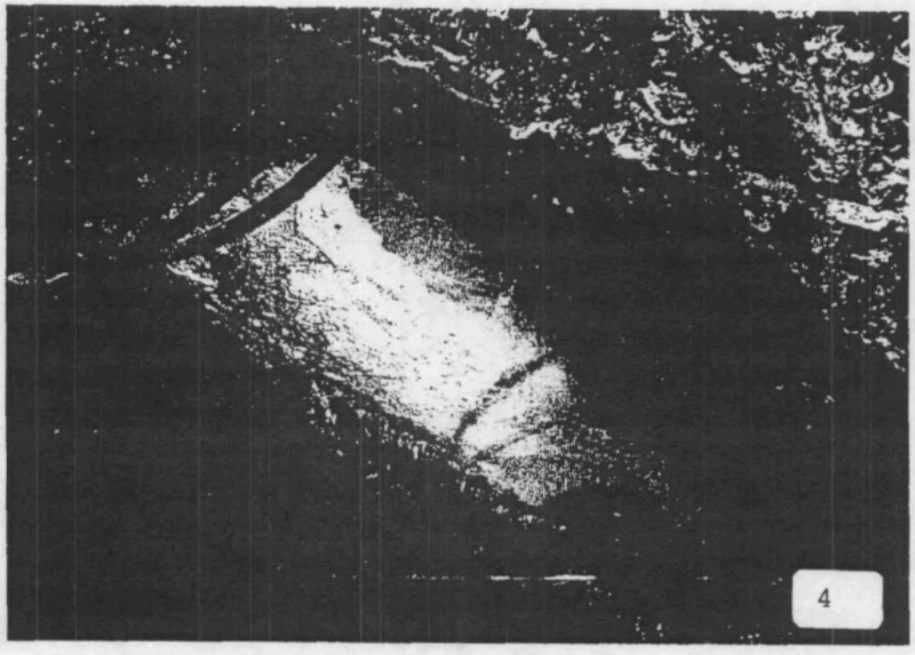
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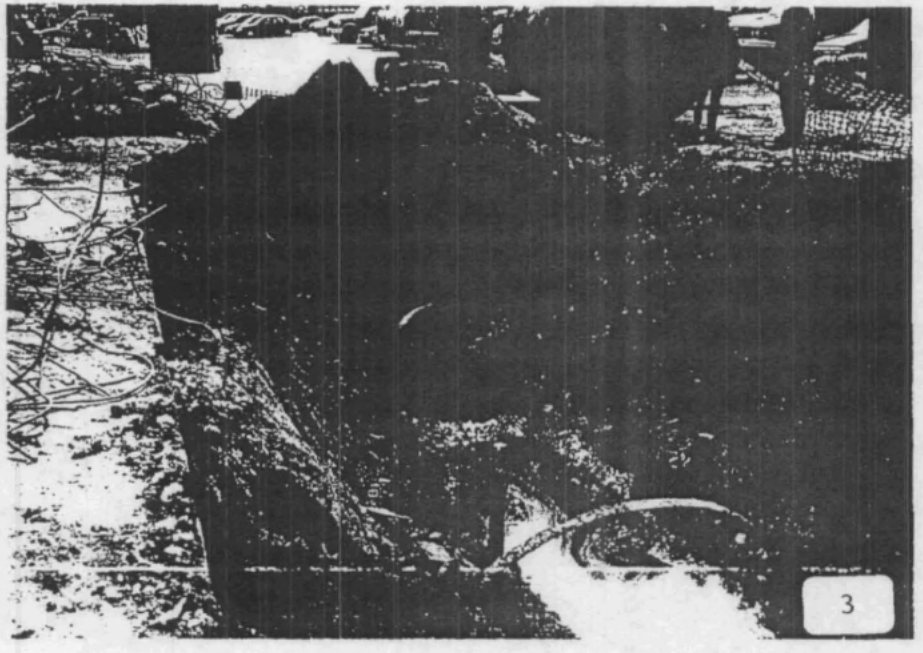
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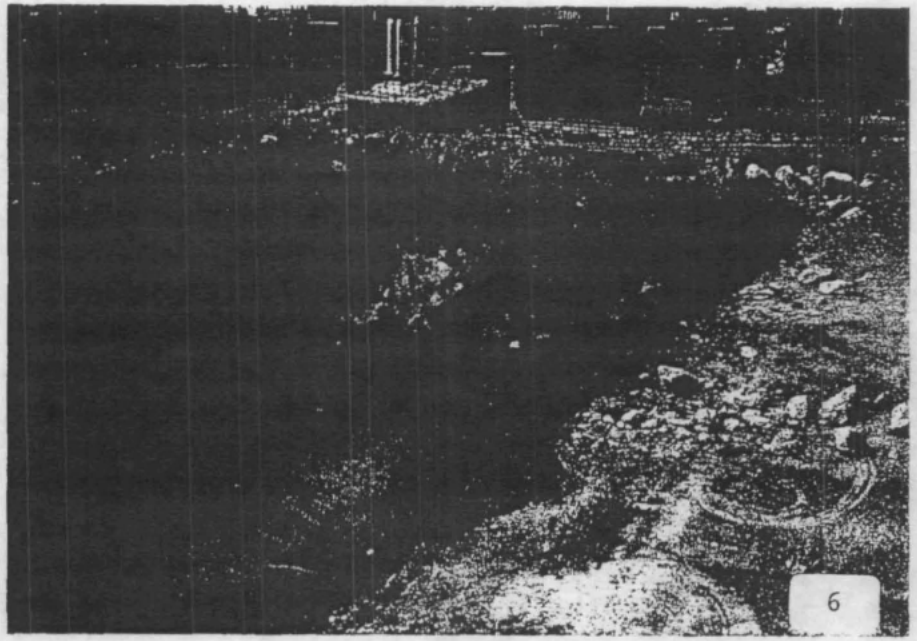
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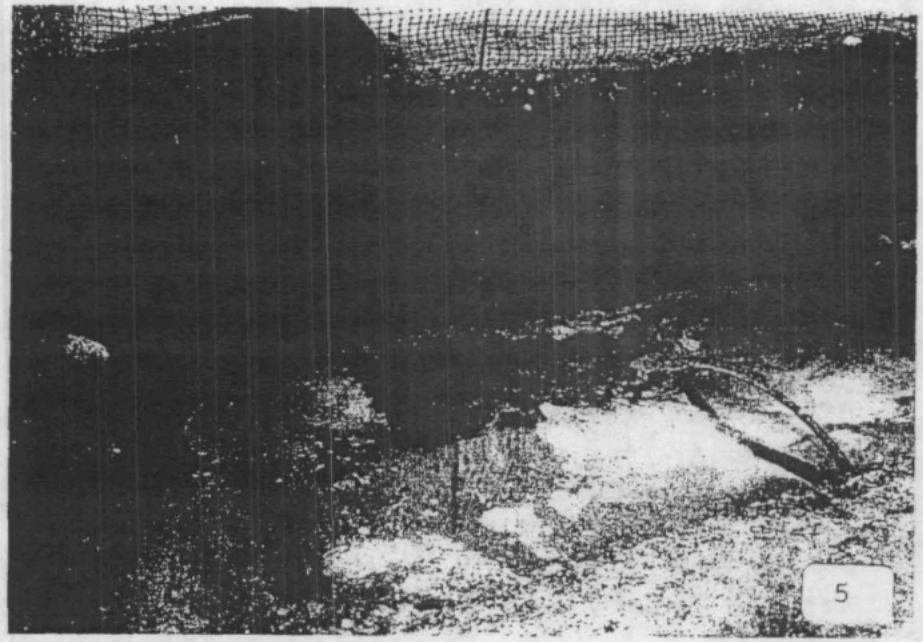
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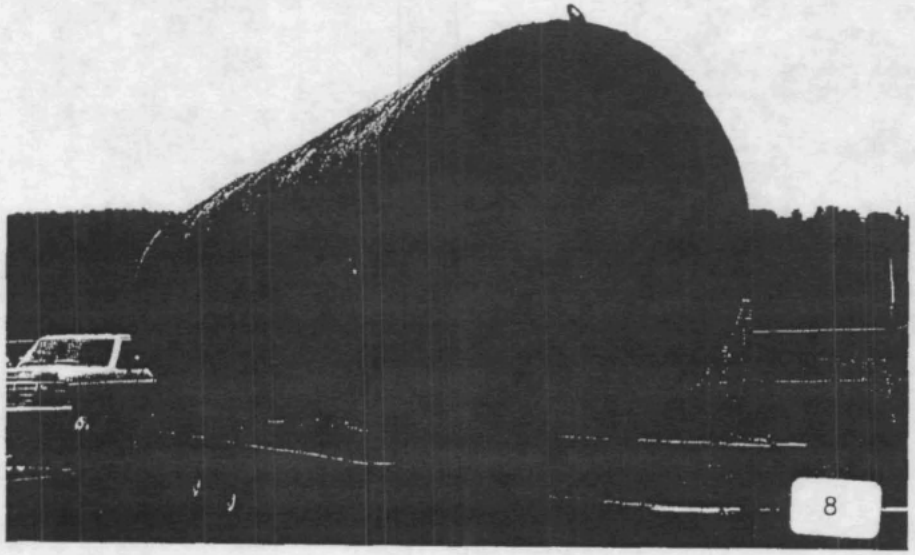
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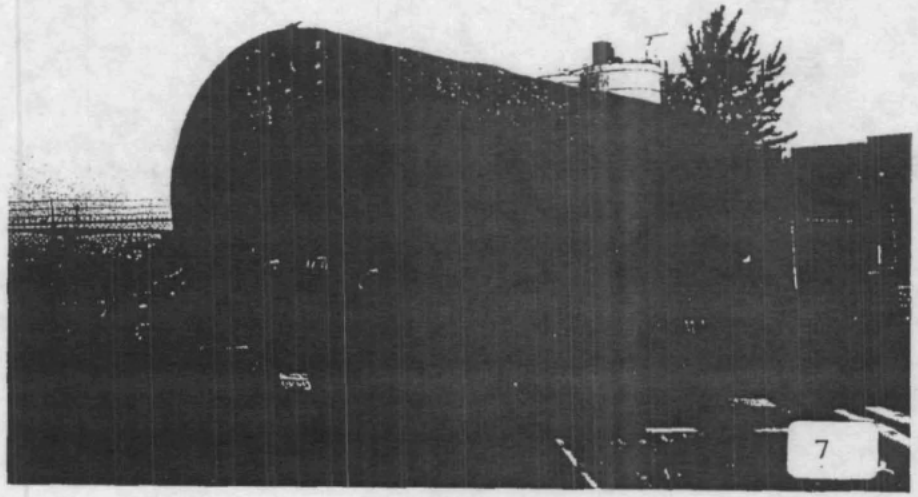
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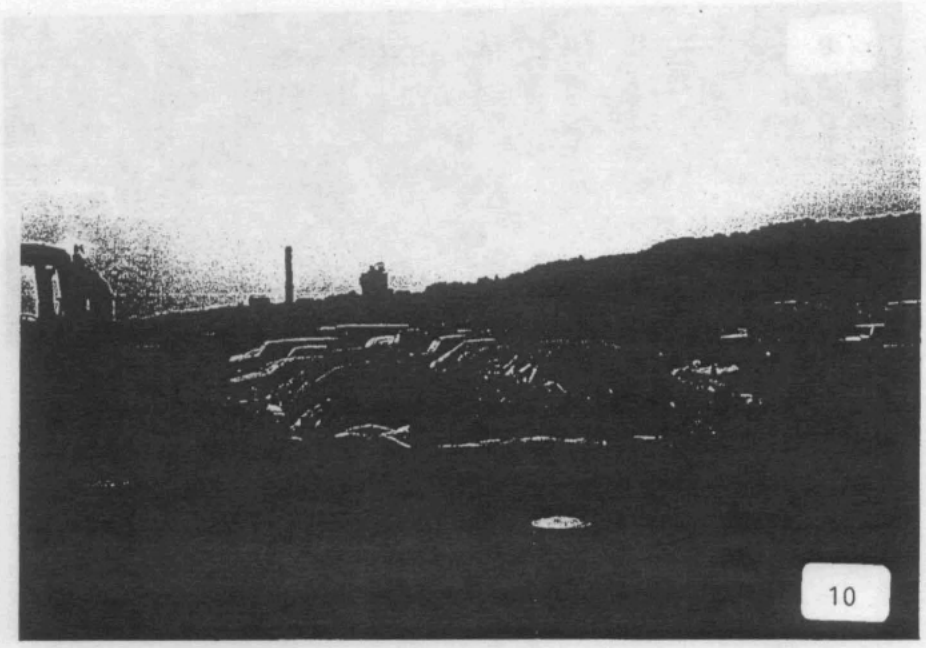
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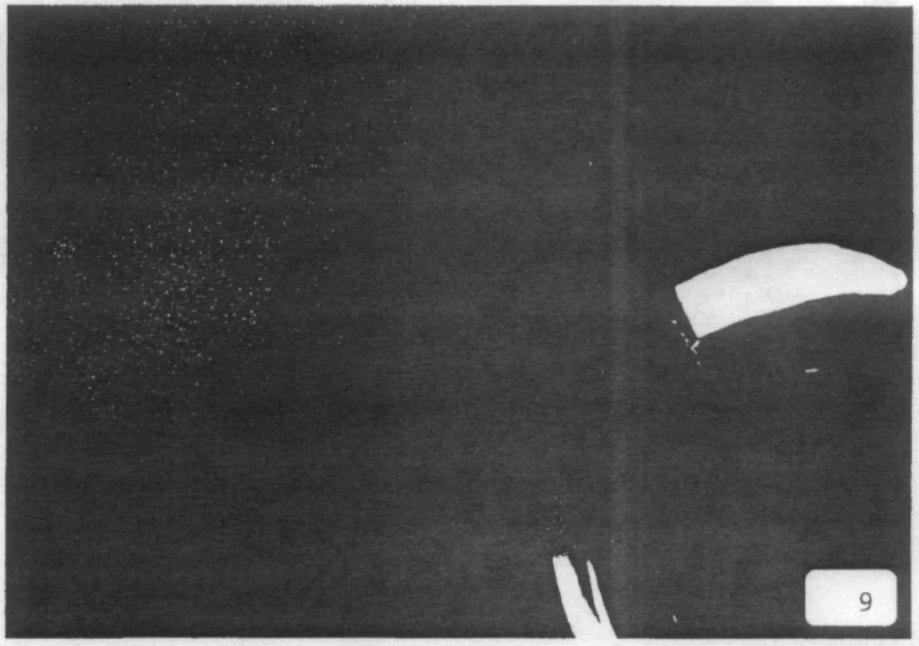
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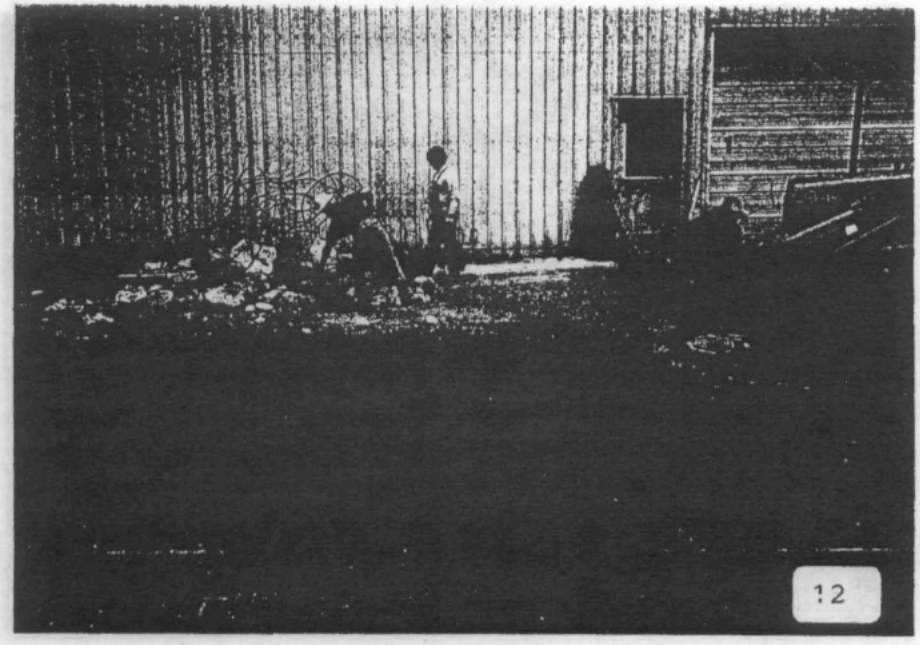
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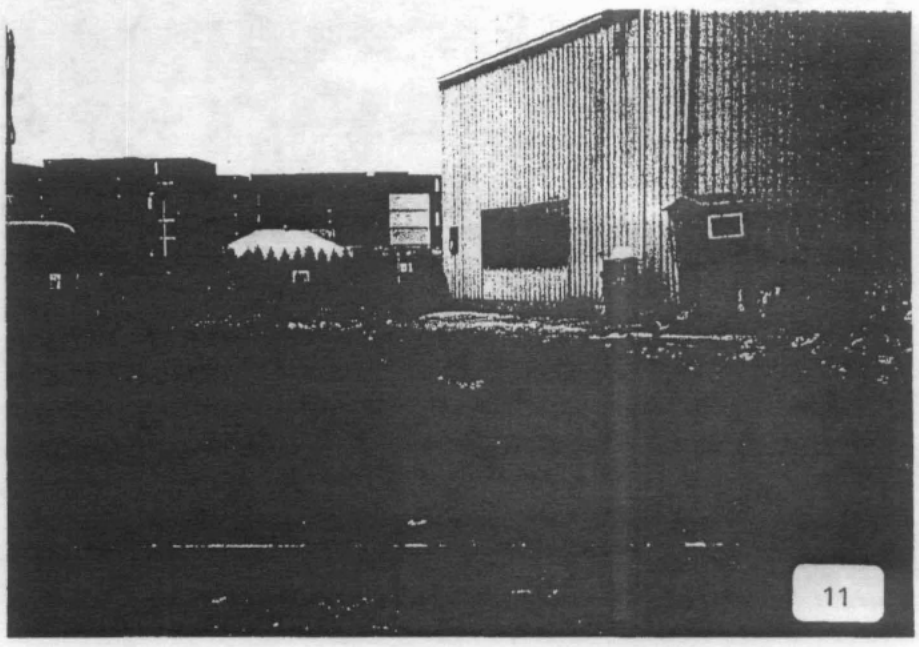
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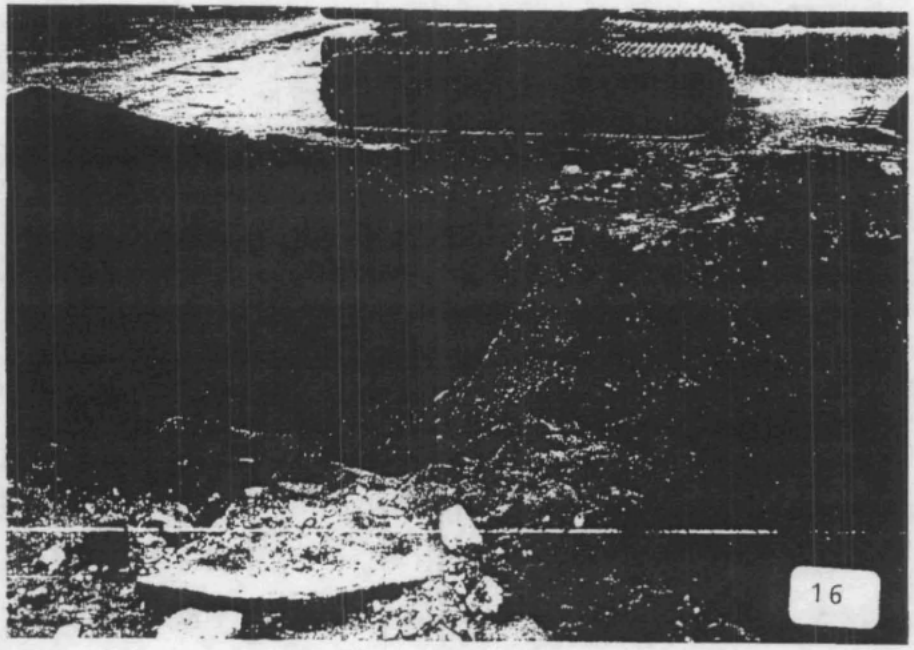
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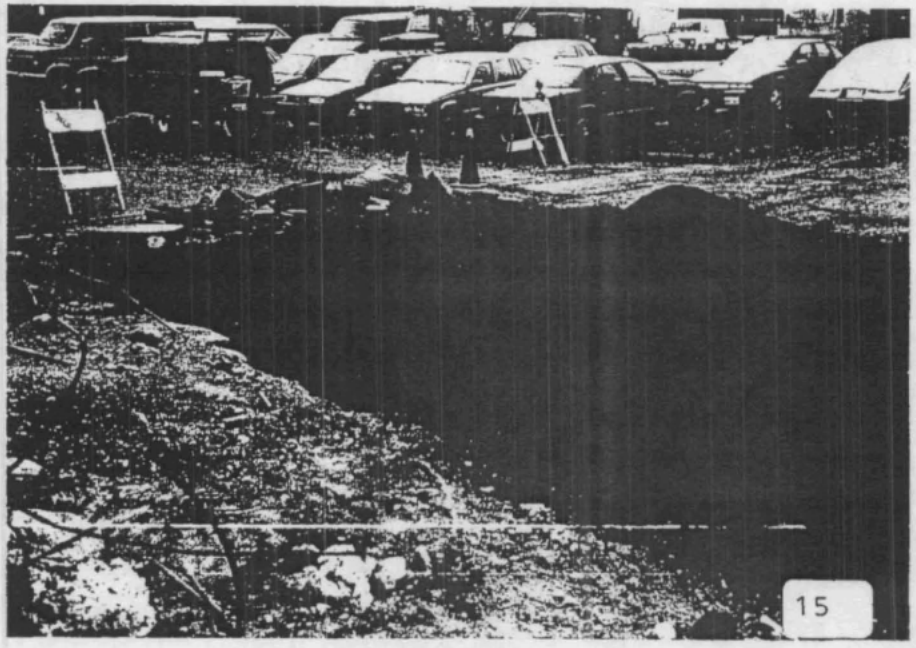
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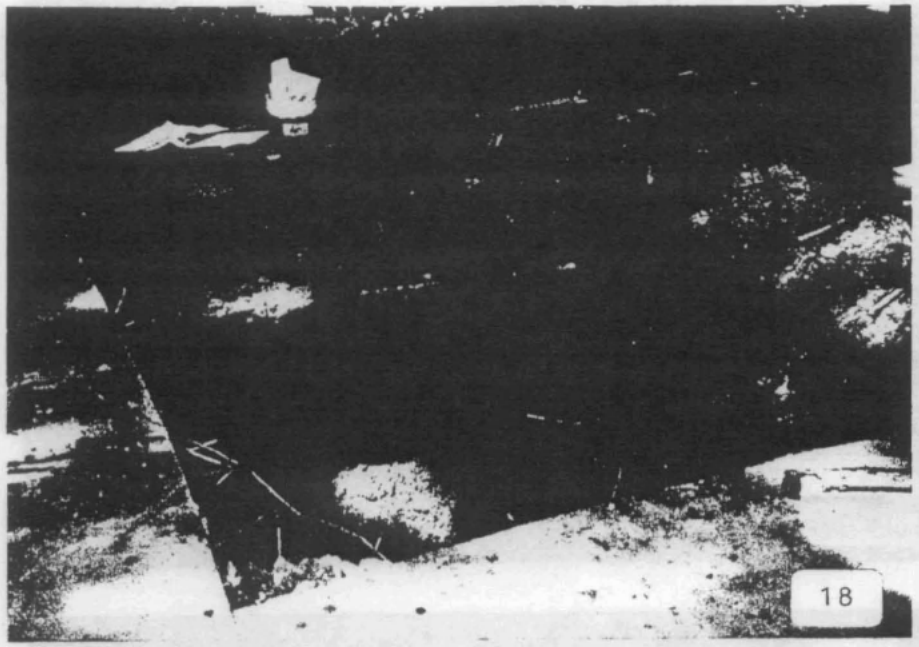
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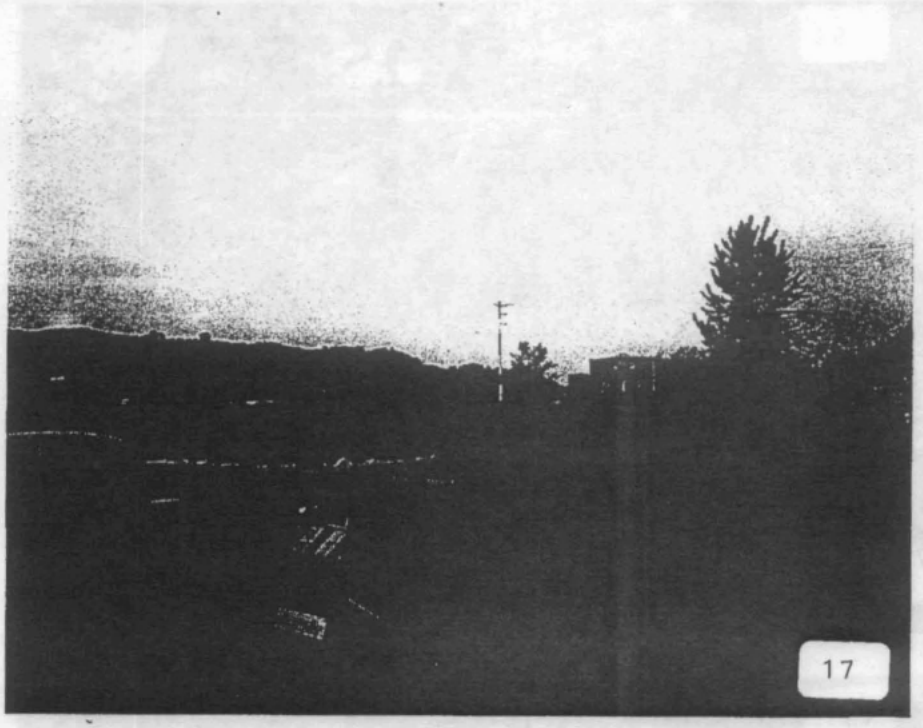
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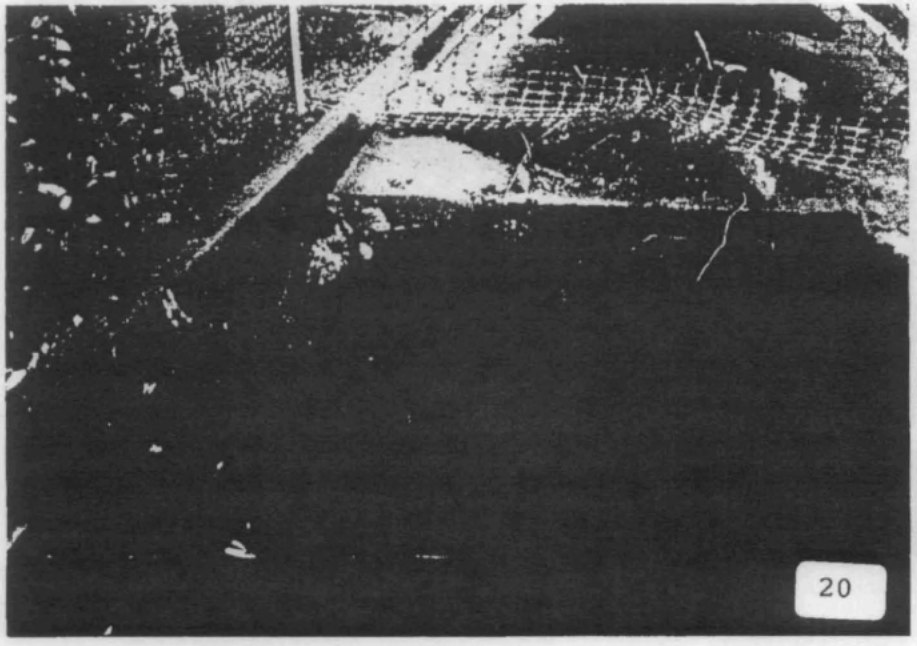
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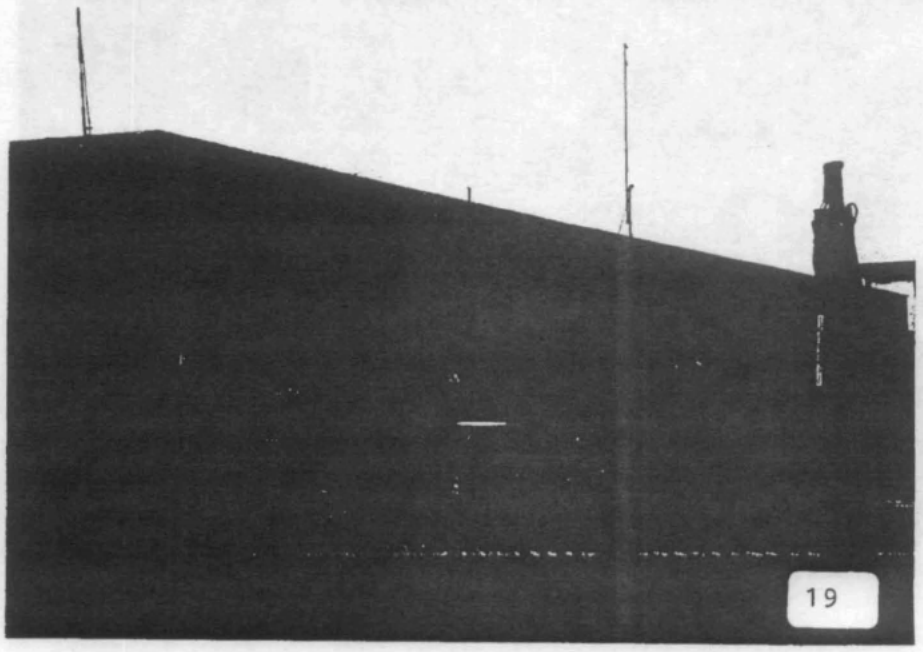
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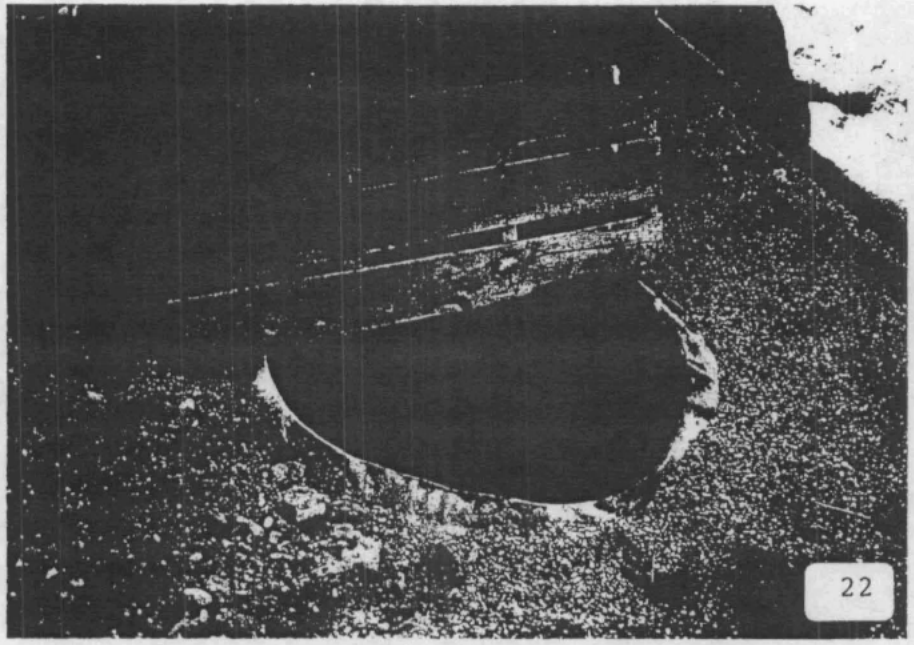
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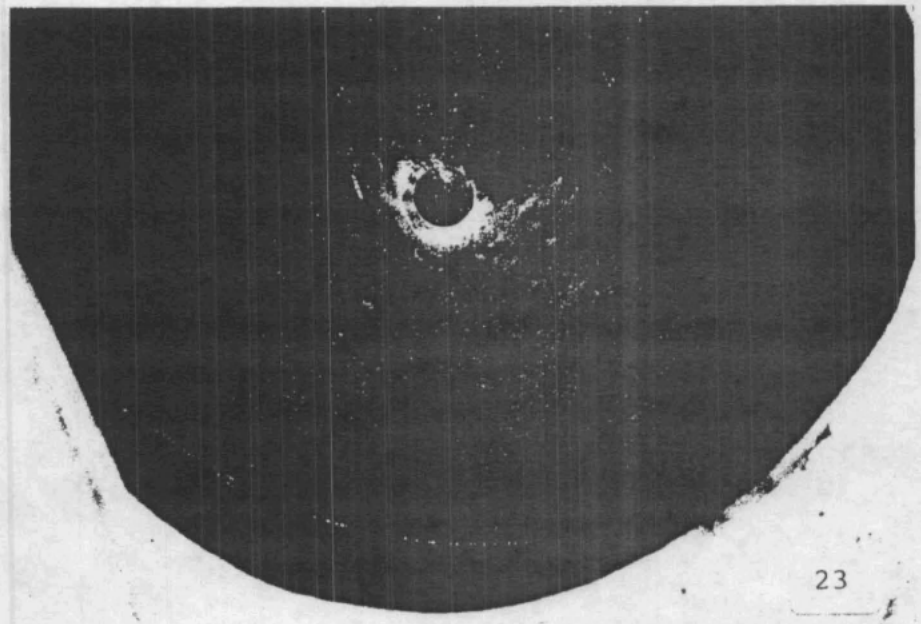
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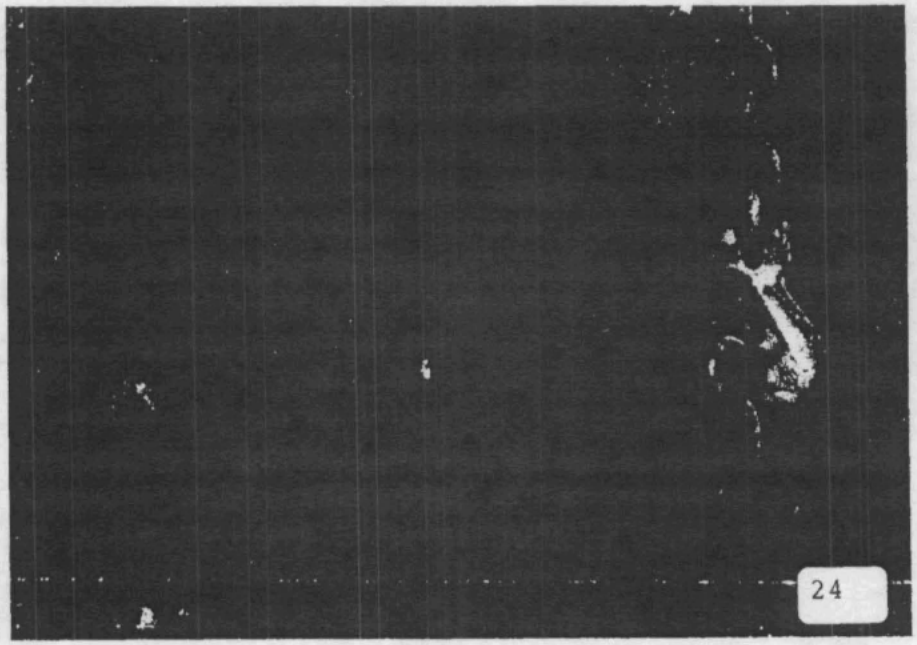
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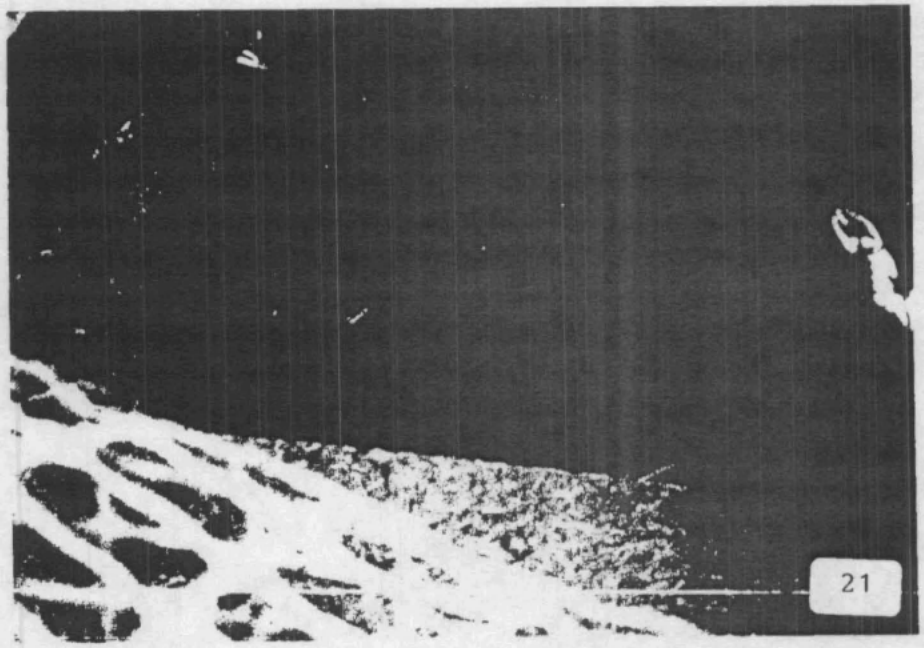
21

APPENDIX D

Disposal Documentation

SCHNITZER STEEL INDUSTRIES, INC. 1902 MARINE VIEW DRIVE • TACOMA, WASHINGTON 98422

98311 CSA FEDERAL CENTER SOUTH
SCRAP STEEL DISPOSAL
TANKS (T-1, T-8), PIPING, REBAR

219210

SEQ. NO.	GROSS WT. (LB.)	DATE
EP 32	45460	07:49 08:33 21 May 98

E P JOHNSON

CODE		MATERIAL	$ / UNIT	TARE WT. (LB.)	NET WT. (LB.)	ADJUSTED NET WT. (LB.)	AMOUNT
15	#	1 SHEAR	$47.00/GT	31320	14140	14140	296.69

SCHNITZER STEEL INDUSTRIES, INC.
1902 MARINE VIEW DRIVE
TACOMA, WASHINGTON 98422
(253) 572-4000

U.S. BANK
FIFE BRANCH
5580 PACIFIC HIGHWAY EAST
FIFE, WASHINGTON 98424-5580

219210
19-10 237
1250
VOID AFTER 90 DAYS

Two Hundred Ninety Six 69/100 Dollars

PAY TO THE ORDER OF

E P JOHNSON

CHECK NO.	DATE	AMOUNT
T-219210	21 May 98	$**296.69

SCHNITZER STEEL INDUSTRIES, INC.

NON-NEGOTIABLE

Non Responsive

BASIN OIL CO INC
USED OIL RECYCLING

Recycling For Tomorrow

P.O. BOX 24906
SEATTLE, WASHINGTON 98124
(206) 763-2948 1-800-439-2948
E.P.A ID # WAD988477501

CUSTOMER'S ORDER NO.	PHONE	DATE
	544-9464	5-14 1998

NAME: EP Johnson Construction

ADDRESS: 1320 North Oregon Ave Pasco 99301

CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RET'D	PAID OUT

170	Gallons Used Fuel For Recycling	@ .150	255 00
250	Gallons Used Diesel For Recycling	@	N/C
30	Gallons Used Oil For Recycling	@	N/C
	4735 E Marginal Way S		
	Test Kit Passed < 1000ppm		

I certify, as the generator of this used oil, that it does not contain detectable levels of PCBs or 1000 ppm chlorinated solvents.

TAX

SOLD BY	RECEIVED BY	TOTAL
[signature]	[signature]	255 00

73185

All claims and returned goods MUST be accompanied by this bill.

Thank You

To Reorder Call NEBS CUSTOM printing service TOLL FREE

98311 GSA FEDERAL CENTER SOUTH
UST PRODUCT DISPOSAL
Tanks T-1, T-6, T-7, T-8

701 Bozarth
P.O. Box 1407
Woodland, WA 98674
EPA # WAD 980986012

OIL RE-REFINING CO., INC.

24 Hour Emergency
(503) 286-8352
1-800-367-8894

No. 51932

Cust. I.D. 756
Call Back

Generator E. P. Johnson Const. (Name) Tom Sunday (Contact) Date 6-15-98
1320 N. Oregon Ave (Address), Pasco (City), Wa. (State) 99301 (Zip) 509-544-9464 (Phone)

Billing Address

Consigned To: FUEL PROCESSORS INC. ORD-980975692
4150 N. SUTTLE RD. PTLD. OR. 97217
Destination: OIL RE-REFINING CO., INC.
Via Carrier:
Driver: Shane Truck No.: 5345 Miles Run: 10

Profile Date: 6-15-98
CK# P.O.# 2497
Load Ticket #

Gallons	Description	Weight	Rate Per Gallon	Rate Per Hour	Charge Paid
100	Combustible liquid NOS NA 1993 III Waste oily Solids	600		247.25/hr	494.50
	Being Transported For Recycling				
100	Total	600		24725	494.50

Customer warrants that the waste petroleum products being transferred by the above collector do not contain any contaminants including, without limitation, pesticides, chlorinated solvents at concentrations greater than 1000 PPM, PCB's at greater concentrations greater than 2 PPM (or 50 PPM with ...) or any other material classified as hazardous waste by 40 CFR part 261, Subparts C ...

REMEDCO, INC. ENVIRONMENTAL SERVICES

7201 E. MARGINAL WAY S
SEATTLE, WA 98108

Invoice

DATE	INVOICE #
6/8/98	1938

COPY

BILL TO
E. P. JOHNSON CONSTRUCTION 1320 N. OREGON AVENUE PASCO, WASHINGTON 99301

P.O. NO.	TERMS	PROJECT
	Net 15	

QUANTITY	HRS/TONS/GALL...	DESCRIPTION	RATE	AMOUNT
104.06	TONS	CONTAMINATED SOIL } 98311 2220-06	34.00	3,538.04
104.06	TONS	TRUCKING	2.50	260.15
		HAULING OF CONCRETE } 98311 2080-00	25.00	25.00
		ASPHALT & CONCRETE	24.00	24.00

JUN 15 1998

Thank you for your business.

Total $3,847.19

Seattle, WA 98108

No.

CUSTOMER'S ORDER NO.	DEPARTMENT	DATE
		6-4-98

NAME Ep Johnson

ADDRESS

CITY, STATE, ZIP

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RETD.	PAID OUT

QUANTITY	DESCRIPTION	PRICE	AMOUNT
	Soils		
	01:04 pm Jun 4, 1998		
	HW 44460 lb Gross 00 lb Tare 44460 lb Net		
	Net		
	21240		
	TONS 10.62		4w 23,220

RECEIVED BY

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Sales Order

No.

CUSTOMER'S ORDER NO.	DEPARTMENT	DATE
		6-

NAME Ep Johnson

ADDRESS

CITY, STATE, ZIP

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MD RE

QUANTITY	DESCRIPTION	PRICE
	Soils	
	~~02:28 pm Jun~~	
	HW ~~46260 lb G~~ ~~00 lb Ta~~ ~~46260 lb Ne~~	
	Net	
	23,040	
	TONS 11.52	4w 23,22

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Sales Order

No.

CUSTOMER'S ORDER NO.	DEPARTMENT	DATE
		6-4-98

NAME: EDjohnson

ADDRESS:

CITY, STATE, ZIP:

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RETD.	PAID OUT
				X		

QUANTITY	DESCRIPTION	PRICE	AMOUNT
	SOILS		
	11:33 am Jun 4, 1998		
	NET HW	42500 lb Gross 00 lb Tare 42500 lb Net	
	19280		
	9.64 TONS	4W	23.22

RECEIVED BY: Ron

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Seattle, WA 98108

No.

CUSTOMER'S ORDER NO.	DEPARTMENT	DATE
		6-

NAME: EP Johnson

ADDRESS:

CITY, STATE, ZIP:

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MD RE

QUANTITY	DESCRIPTION	PRICE
	Soil	
	12:29 PM Jun	
	net HW	41260 lb G 00 lb T 41260 lb Ne
	18040	
	9.02 Tons LW	232

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Sales Order

[redacted]

Seattle, WA 98108

No.

CUSTOMER'S ORDER NO.	DEPARTMENT	DATE
		6-4-98

NAME EP Johnson

ADDRESS

CITY, STATE, ZIP

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RETD.	PAID OUT
				X		

QUANTITY	DESCRIPTION	PRICE	AMOUNT
	Sales		
		10:21 am Jun 4, 1998	
	H/W	41480 lb Gross 00 lb Tare 41480 lb Net	
	NET		
	18,260		
		4W	23,220
	9.13 TONS		

RECEIVED BY

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KEEP THIS SLIP FOR REFERENCE

Sales Order

[redacted]

Seattle, WA 98108

No.

CUSTOMER'S ORDER NO.	DEPARTMENT	DATE
		6-4

NAME EP Johnson

ADDRESS

CITY, STATE, ZIP

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RETD.
				X	

QUANTITY	DESCRIPTION	PRICE	A
	Sales		
		10:44 am Jun	
	NET H/W	43240 lb Gro 00 lb Tar 43240 lb Net	
	23020		
	10.01 TONS	4W	23,22

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Sales Order

Remedco Inc.
7201 E. Marginal Way S.
Seattle, WA 98108

No.

CUSTOMER'S ORDER NO.	DEPARTMENT	DATE
		6-4-98

NAME: EPJohnson

ADDRESS:

CITY, STATE, ZIP:

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RETD.	PAID OUT
				X		

QUANTITY	DESCRIPTION	PRICE	AMOUNT
1			
2	Soils 01:44 pm Jun 4, 1998		
3			
4			
5	43520 lb Gross		
6	NET H/W 00 lb Tare		
7	43520 lb Net		
8	20,300		
9			
10			
11	10.15		
12	TONS 4W 23,220		
13			
14			
15			
16			
17			
18			
19			
20			

RECEIVED BY: Ron

KEEP THIS SLIP FOR REFERENCE

Sales Order

Adams NC 5805

SALES ORDER

Remedco Inc.
7201 E. Marginal Way S.
Seattle, WA 98108

No.

CUSTOMER'S ORDER NO.	DEPARTMENT	DATE
		6-4-9

NAME: EP Johnson

ADDRESS:

CITY, STATE, ZIP:

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RETD.
				X	

QUANTITY	DESCRIPTION	PRICE	AM
1			
2	Soils ~~09:52 am Jun 4,~~		
3			
4			
5	45560 lb Gros.		
6	H/W 00 lb Tare		
7	NET 45560 lb Net		
8			
9	22,340		
10			
11			
12	11.17		
13	TONS 4W 23,220		
14			
15			
16			
17			
18			
19			
20			

RECEIVED BY: Ron

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Sales O

Adams NC 5805

Remedco Inc.
7201 E. Marginal Way S.
Seattle, WA 98108

No.

CUSTOMER'S ORDER NO.	DEPARTMENT	DATE 6-4-98

NAME Ep Johnson

ADDRESS

CITY, STATE, ZIP

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RETD.	PAID OUT

QUANTITY	DESCRIPTION	PRICE	AMOUNT
1			
2	Soils	02:59 pm Jun 4, 1998	
3			
4			
5	HW	43920 lb Gross	
6		00 lb Tare	
7	Net	43920 lb Net	
8	20,700		
9			
10			
11			
12	10.35		
13	Tons	YW 23,220	
14			
15			
16			
17			
18			
19			
20			

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Sales Order

Adams
NC 5805

Remedco Inc.
7201 E. Marginal Way S.
Seattle, WA 98108

No.

CUSTOMER'S ORDER NO.	DEPARTMENT	DATE 6-

NAME E P Johnson

ADDRESS

CITY, STATE, ZIP

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MI RI

QUANTITY	DESCRIPTION	PRICE
1		
2	Soils	03:51 pm Jul
3		
4		
5	NET HW	48120 lb
6		00 lb
7	24900	48120 lb
8		
9		
10		
11		
12	LW 232	
13	Tons	
14		
15		
16	12.45	
17		
18		
19		
20		

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Sales Order

Adams
NC 5805

APPENDIX E

Laboratory Reports and Chain-of Custody Records

OnSite
Environmental Inc.
Analytical Testing and Mobile Laboratory Services

May 28, 1998

Peter Jowise
Herrera Environmental Consultants, Inc.
2200 6th Avenue, Suite 601
Seattle, WA 98121

Re: Analytical Data for Project 491.23
Laboratory Reference No. 9805-119

Dear Peter:

Enclosed are the analytical results and associated quality control data for samples submitted on May 20, 1998.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

FOR

David Baumeister
Project Chemist

Enclosures

14924 NE 31st Circle • Redmond, WA 98052 • (425) 883-3881 • Fax (425) 885-4603

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-Dx

Date Extracted: 5-20-98
Date Analyzed: 5-20&21-98

Matrix: Soil
Units: mg/Kg (ppm)

Client ID:	T1-1	T1-2	T1-3
Lab ID:	05-119-01	05-119-02	05-119-03
Diesel Fuel C12-C24:	4000	4700	55
PQL:	130	130	26
Oil C24-C34:	11000	12000	360
PQL:	110	100	51
Surrogate Recovery:			
o-Terphenyl	---	---	93%
Flags:	S,O	S,O	O

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-Dx

Date Extracted:	5-20-98
Date Analyzed:	5-20&21-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	T2-1	T2-2	T2-SP-1
Lab ID:	05-119-04	05-119-05	05-119-06
Diesel Fuel C12-C24:	ND	ND	ND
PQL:	27	27	26
Oil C24-C34:	90	61	ND
PQL:	54	54	52
Surrogate Recovery:			
o-Terphenyl	76%	87%	80%

Flags:

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-Dx

Date Extracted:	5-20-98
Date Analyzed:	5-20&21-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	T2-SP-2	T2-SP-3	T3-1
Lab ID:	05-119-07	05-119-08	05-119-09
Diesel Fuel C12-C24:	ND	30	550
PQL:	27	27	27
Oil C24-C34:	140	250	95
PQL:	54	53	53
Surrogate Recovery:			
o-Terphenyl	79%	79%	76%
Flags:		O	P

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-Dx

Date Extracted:	5-20-98
Date Analyzed:	5-20&21-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	T3-2	T3-3	T3-SP-1
Lab ID:	05-119-10	05-119-11	05-119-12
Diesel Fuel C12-C24:	17000	98	ND
PQL:	1300	26	26
Oil C24-C34:	1800	60	89
PQL:	1100	53	53
Surrogate Recovery:			
o-Terphenyl	---	85%	76%
Flags:	S,P		O

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-Dx

Date Extracted:	5-20-98
Date Analyzed:	5-20&21-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	T3-SP-2	T3-SP-3
Lab ID:	05-119-13	05-119-14
Diesel Fuel C12-C24:	560	180
PQL:	27	26
Oil C24-C34:	350	350
PQL:	53	53
Surrogate Recovery:		
o-Terphenyl	77%	77%
Flags:		O

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	5-20-98
Date Analyzed:	5-20-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB0520S1
Diesel Fuel C12-C24:	ND
PQL:	25
Oil C24-C34:	ND
PQL:	50
Surrogate Recovery:	
o-Terphenyl	88%

Flags:

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	5-20-98
Date Analyzed:	5-20-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB0520S2
Diesel Fuel C12-C24:	ND
PQL:	25
Oil C24-C34:	ND
PQL:	50
Surrogate Recovery:	
o-Terphenyl	96%

Flags:

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	5-19-98
Date Analyzed:	5-19-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	05-114-02	05-114-02 DUP
Diesel Fuel C12-C24:	ND	ND
PQL:	25	25
RPD:	N/A	
Surrogate Recovery:		
o-Terphenyl	90%	88%

Flags:

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	5-20-98
Date Analyzed:	5-20-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	05-119-09	05-119-09 DUP
Diesel Fuel C12-C24:	515	432
PQL:	25	25
RPD:	18	
Surrogate Recovery:		
o-Terphenyl	76%	88%

Flags:

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-Dx
SB/SBD QUALITY CONTROL

Date Extracted:	5-19-98
Date Analyzed:	5-19-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Spike Level:	100 ppm

Lab ID:	SB0519S1	SB0519S1 DUP
Diesel Fuel C12-C24:	74.0	76.0
PQL:	25	25
Percent Recovery:	74	76
RPD:	2.7	
Surrogate Recovery:		
o-Terphenyl	98%	99%

Flags:

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-Dx
SB/SBD QUALITY CONTROL

Date Extracted:	5-20-98
Date Analyzed:	5-20-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Spike Level:	100 ppm

Lab ID:	SB0520S1	SB0520S1 DUP
Diesel Fuel C12-C24:	78.7	79.4
PQL:	25	25
Percent Recovery:	79	79
RPD:	0.89	
Surrogate Recovery:		
o-Terphenyl	102%	102%

Flags:

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-G/BTEX

Date Extracted: 5-21-98
Date Analyzed: 5-22&27-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID:	05-119-15			05-119-16		
Client ID:	**T4-1**			**T4-2**		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.057	**ND**		0.053
Toluene	**ND**		0.057	**ND**		0.053
Ethyl Benzene	**ND**		0.057	**ND**		0.053
m,p-Xylene	**ND**		0.057	**ND**		0.053
o-Xylene	**ND**		0.057	**ND**		0.053
TPH-Gas	**ND**		5.7	**ND**		5.3
Surrogate Recovery:						
Fluorobenzene	88%			84%		

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-G/BTEX

Date Extracted: 5-21-98
Date Analyzed: 5-22&25-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID:	05-119-17			05-119-18		
Client ID:	**T4-3**			**T4-4**		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.058	**0.13**		0.054
Toluene	**ND**		0.058	**1.1**		0.054
Ethyl Benzene	**ND**		0.058	**10**		1.1
m,p-Xylene	**ND**		0.058	**49**		1.1
o-Xylene	**ND**		0.058	**17**		1.1
TPH-Gas	**350**		5.8	**120**		5.4
Surrogate Recovery:						
Fluorobenzene	79%			86%		

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-G/BTEX

Date Extracted: 5-21-98
Date Analyzed: 5-22-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID:	05-119-19			05-119-20		
Client ID:	**T4-SP-1**			**T4-SP-2**		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.053	**ND**		0.053
Toluene	**ND**		0.053	**ND**		0.053
Ethyl Benzene	**ND**		0.053	**ND**		0.053
m,p-Xylene	**ND**		0.053	**ND**		0.053
o-Xylene	**ND**		0.053	**ND**		0.053
TPH-Gas	**ND**		5.3	**ND**		5.3
Surrogate Recovery: Fluorobenzene	84%			85%		

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-G/BTEX

Date Extracted: 5-21-98
Date Analyzed: 5-22-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: 05-119-21
Client ID: **T4-SP-3**

	Result	Flags	PQL
Benzene	**ND**		0.053
Toluene	**ND**		0.053
Ethyl Benzene	**ND**		0.053
m,p-Xylene	**ND**		0.053
o-Xylene	**ND**		0.053
TPH-Gas	**ND**		5.3
Surrogate Recovery:			
Fluorobenzene	78%		

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-G/BTEX
METHOD BLANK QUALITY CONTROL

Date Extracted: 5-21-98
Date Analyzed: 5-22-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: MB0521S1

	Result	Flags	PQL
Benzene	ND		0.050
Toluene	ND		0.050
Ethyl Benzene	ND		0.050
m,p-Xylene	ND		0.050
o-Xylene	ND		0.050
TPH-Gas	ND		5.0
Surrogate Recovery:			
Fluorobenzene	86%		

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-G/BTEX
DUPLICATE QUALITY CONTROL

Date Extracted: 5-21-98
Date Analyzed: 5-22-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID:	05-119-19 Original	05-119-19 Duplicate	RPD	Flags
Benzene	ND	ND	NA	
Toluene	ND	ND	NA	
Ethyl Benzene	ND	ND	NA	
m,p-Xylene	ND	ND	NA	
o-Xylene	ND	ND	NA	
TPH-Gas	ND	ND	NA	
Surrogate Recovery:				
Fluorobenzene	84%	88%		

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-G/BTEX
MS/MSD QUALITY CONTROL

Date Extracted: 5-21-98
Date Analyzed: 5-22-98

Matrix: Soil
Units: mg/Kg (ppm)

Spike Level: 1.00 ppm

Lab ID:	05-119-19 **MS**	Percent Recovery	05-119-19 **MSD**	Percent Recovery	RPD
Benzene	**0.813**	**81**	**0.785**	**78**	3.5
Toluene	**0.831**	**83**	**0.879**	**88**	5.5
Ethyl Benzene	**0.85**	**85**	**0.822**	**82**	3.3
m,p-Xylene	**0.843**	**84**	**0.821**	**82**	2.6
o-Xylene	**0.821**	**82**	**0.795**	**79**	3.3

Surrogate Recovery:

Fluorobenzene	85%	82%

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-G/BTEX

Date Extracted: 5-22-98
Date Analyzed: 5-22-98

Matrix: Water
Units: ug/L (ppb)

Lab ID: 05-119-22
Client ID: **T4-H2O**

	Result	Flags	PQL
Benzene	**ND**		5.0
Toluene	**ND**		5.0
Ethyl Benzene	**ND**		5.0
m,p-Xylene	**ND**		5.0
o-Xylene	**ND**		5.0
TPH-Gas	**ND**		500
Surrogate Recovery:			
Fluorobenzene	85%		

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-G/BTEX
METHOD BLANK QUALITY CONTROL

Date Extracted: 5-22-98
Date Analyzed: 5-22-98

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0522W1

	Result	Flags	PQL
Benzene	ND		1.0
Toluene	ND		1.0
Ethyl Benzene	ND		1.0
m,p-Xylene	ND		1.0
o-Xylene	ND		1.0
TPH-Gas	ND		100

Surrogate Recovery:
Fluorobenzene 100%

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-G/BTEX
DUPLICATE QUALITY CONTROL

Date Extracted: 5-21-98
Date Analyzed: 5-21-98

Matrix: Water
Units: ug/L (ppb)

Lab ID:	05-112-05 **Original**	05-112-05 **Duplicate**	**RPD**	**Flags**
Benzene	**ND**	**ND**	NA	
Toluene	**ND**	**ND**	NA	
Ethyl Benzene	**ND**	**ND**	NA	
m,p-Xylene	**ND**	**ND**	NA	
o-Xylene	**ND**	**ND**	NA	
TPH-Gas	**195**	**192**	1.6	
Surrogate Recovery:				
Fluorobenzene	93%	95%		

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

NWTPH-G/BTEX
MS/MSD QUALITY CONTROL

Date Extracted: 5-21-98
Date Analyzed: 5-21-98

Matrix: Water
Units: ug/L (ppb)
Spike Level: 50.0 ppb

Lab ID:	05-112-05 **MS**	Percent Recovery	05-112-05 **MSD**	Percent Recovery	RPD
Benzene	**49.3**	**99**	**51.3**	**103**	4.0
Toluene	**49.7**	**99**	**52.0**	**104**	4.6
Ethyl Benzene	**50.6**	**101**	**52.5**	**105**	3.8
m,p-Xylene	**49.6**	**99**	**51.5**	**103**	3.8
o-Xylene	**49.4**	**99**	**51.3**	**103**	3.8
Surrogate Recovery:					
Fluorobenzene	94%		91%		

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 5-20-98
Date Analyzed: 5-20-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-119-01
Client ID: T1-1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**13**	0.53
Cadmium	6010B	**ND**	0.53
Chromium	6010B	**15**	0.53
Lead	6010B	**ND**	5.3
Mercury	7471A	**ND**	0.26
Selenium	6010B	**ND**	11
Silver	6010B	**3.8**	0.53

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 5-20-98
Date Analyzed: 5-20-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-119-02
Client ID: T1-2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**26**	0.52
Cadmium	6010B	**ND**	0.52
Chromium	6010B	**22**	0.52
Lead	6010B	**6.7**	5.2
Mercury	7471A	**ND**	0.26
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.52

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 5-20-98
Date Analyzed: 5-20-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-119-03
Client ID: T1-3

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**22**	0.51
Cadmium	6010B	**ND**	0.51
Chromium	6010B	**12**	0.51
Lead	6010B	**28**	5.1
Mercury	7471A	**ND**	0.26
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.51

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted: 5-20-98
Date Analyzed: 5-20-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0520S1

Analyte	Method	Result	PQL
Arsenic	6010B	ND	10
Barium	6010B	ND	0.50
Cadmium	6010B	ND	0.50
Chromium	6010B	ND	0.50
Lead	6010B	ND	5.0
Mercury	7471A	ND	0.25
Selenium	6010B	ND	10
Silver	6010B	ND	0.50

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 5-20-98
Date Analyzed: 5-20-98

Matrix: *Soil*
Units: mg/kg (ppm)

Lab ID: 05-114-10

Analyte	Sample Result	Duplicate Result	RPD	Flags	PQL
Arsenic	**ND**	**ND**	NA		10
Barium	**32.5**	**36.0**	10		0.50
Cadmium	**ND**	**ND**	NA		0.50
Chromium	**22.2**	**22.3**	0.45		0.50
Lead	**ND**	**ND**	NA		5.0
Mercury	**ND**	**ND**	NA		0.25
Selenium	**ND**	**ND**	NA		10
Silver	**ND**	**ND**	NA		0.50

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 5-20-98
Date Analyzed: 5-20-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-114-10

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**83.6**	84	**87.6**	88	4.7	
Barium	100	**125**	93	**130**	97	3.6	
Cadmium	50	**47.8**	96	**47.9**	96	0.21	
Chromium	100	**113**	91	**116**	94	2.2	
Lead	250	**203**	81	**212**	85	4.4	
Mercury	1.0	**0.966**	97	**0.978**	98	1.2	
Selenium	100	**95.7**	96	**88.5**	88	7.8	
Silver	50	**38.0**	76	**38.0**	76	0	

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

TOTAL LEAD
EPA 6010B

Date Extracted: 5-21-98
Date Analyzed: 5-21-98

Matrix: Soil
Units: mg/kg (ppm)

Client ID	Lab ID	Result	PQL
T4-1	05-119-15	**23**	5.7
T4-2	05-119-16	**7.8**	5.3
T4-3	05-119-17	**27**	5.8
T4-4	05-119-18	**25**	5.4
T4-SP-1	05-119-19	**19**	5.3
T4-SP-2	05-119-20	**31**	5.3
T4-SP-3	05-119-21	**10**	5.3

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

TOTAL LEAD
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted: 5-21-98
Date Analyzed: 5-21-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0521S1

Analyte	Method	Result	PQL
Lead	6010B	**ND**	5.0

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

TOTAL LEAD
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 5-21-98
Date Analyzed: 5-21-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-118-01

Analyte	Sample Result	Duplicate Result	RPD	Flags	PQL
Lead	**ND**	**ND**	NA		5.0

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

TOTAL LEAD
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 5-21-98
Date Analyzed: 5-21-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-118-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Lead	250	**208**	83	**206**	82	0.92	

Date of Report: May 28, 1998
Samples Submitted: May 20, 1998
Lab Traveler: 05-119
Project: 491.23

Date Analyzed: 5-20-98

% MOISTURE

Client ID	Lab ID	% Moisture
T1-1	05-119-01	5.0
T1-2	05-119-02	4.0
T1-3	05-119-03	2.0
T2-1	05-119-04	8.0
T2-2	05-119-05	8.0
T2-SP-1	05-119-06	4.0
T2-SP-2	05-119-07	8.0
T2-SP-3	05-119-08	6.0
T3-1	05-119-09	6.0
T3-2	05-119-10	6.0
T3-3	05-119-11	5.0
T3-SP-1	05-119-12	5.0
T3-SP-2	05-119-13	6.0
T3-SP-3	05-119-14	5.0
T4-1	05-119-15	13
T4-2	05-119-16	6.0
T4-3	05-119-17	14
T4-4	05-119-18	8.0
T4-SP-1	05-119-19	6.0
T4-SP-2	05-119-20	6.0
T4-SP-3	05-119-21	6.0

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

L - Quantitated from C7-C34 as diesel fuel #2.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample which are elevating the diesel result.

O - Hydrocarbons in the heavy oil range (>C24) are present in the sample which are elevating the diesel result.

P - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample and are elevating the gasoline result.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

Y - Acid Cleaned.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

Chain of Custody

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: HERRERA ENV. CONSULTANTS
Project No.: 491.23
Project Name: FEDERAL S. WAREHOUSE
Project Manager: PETER JOWISE

Turn Around Requested (Check One)
- [x] Same Day
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] Standard
- [ ] _____ (other)

Project Chemist: DAB

Laboratory No.

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8240/624/8260	Halogenated Volatiles by 8260	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8081/608	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	% Moisture
1	T1-1	5/19	11:20	SOIL	1			X						X				X
2	T1-2		11:35		1			X						X				X
3	T1-3		11:50		1			X						X				X
4	T2-1		1640		1			X										X
5	T2-2		1642		1			X										X
6	T2-SP-1		1645		1			X										X
7	T2-SP-2		1650		1			X										X
8	T2-SP-3		1650		1			X										X
9	T3-1		1250		1			X										X
10	T3-2		1300		1			X										X
11	T3-3		1305		1			X										X
12	T3-SP-1		1630		1			X										X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
[signature]	5/19/98	[signature]	5/20/98
FIRM: HERRERA	TIME: 0800	FIRM: OSE	TIME: 8:00
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

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Chain of Custody

Page 2 of 2

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14924 NE 31st Circle • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: HERRERA ENV. CONS.
Project No.: 491.23
Project Name: FED. S. WAREHOUSE
Project Manager: PETER JOWISE

Turn Around Requested (Check One)
- [x] Same Day
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] Standard
- [ ] _____ (other)

Project Chemist: DAB

Laboratory No.

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8240/624/8260	Halogenated Volatiles by 8260	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8081/608	Total RCRA Metals (8) Lead	TCLP Metals	VPH	EPH	% Moisture
13	T3-SP-2	5/19	1632	SOIL	1			X										X
14	T3-SP-3		1634		1			X										X
15	T4-1		1535		1		X							X				X
16	T4-2		1540		1		X							X				X
17	T4-3		1555		1		X							X				X
18	T4-4		1610		1		X							X				X
19	T4-SP-1		1615		1		X							X				X
20	T4-SP-2		1620		1		X							X				X
21	T4-SP-3		1625		1		X							X				X
22	T4-H2O		1600	WATER	2		X											

RELINQUISHED BY	DATE	RECEIVED BY	DATE
[signature]	5/19/98	[signature]	5/20/98
FIRM: HERRERA	TIME: 0800	FIRM: OSE	TIME: 8:00
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:
T4-4 - Possible high concentration

⊗ Added per Rob Hamilton 5/20/98 KK FRIDAY

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OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

May 28, 1998

Peter Jowise
Herrera Environmental Consultants, Inc.
2200 6th Avenue, Suite 601
Seattle, WA 98121

Re: Analytical Data for Project 491.23
Laboratory Reference No. 9805-141

Dear Peter:

Enclosed are the analytical results and associated quality control data for samples submitted on May 22, 1998.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

14924 NE 31st Circle • Redmond, WA 98052 • (425) 883-3881 • Fax (425) 885-4603

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

NWTPH-Dx

Date Extracted:	5-22-98
Date Analyzed:	5-22-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	T3-4	T3-5	T3-6
Lab ID:	05-141-01	05-141-02	05-141-03
Diesel Fuel C12-C24:	ND	3700	ND
PQL:	27	33	33
Oil C24-C34:	ND	180	ND
PQL:	54	67	67
Surrogate Recovery:			
o-Terphenyl	100%	---	98%
Flags:		F,P	

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	5-22-98
Date Analyzed:	5-22-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB0522S1
Diesel Fuel C12-C24:	ND
PQL:	25
Oil C24-C34:	ND
PQL:	50
Surrogate Recovery:	100%
o-Terphenyl	
Flags:	

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	5-21-98
Date Analyzed:	5-22-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	05-137-04	05-137-04 DUP
Diesel Fuel C12-C24:	355	237
PQL:	25	25
RPD:	40	
Surrogate Recovery:		
o-Terphenyl	110%	92%

Flags:

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

NWTPH-Dx
SB/SBD QUALITY CONTROL

Date Extracted:	5-22-98
Date Analyzed:	5-22-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	SB0522S1	SB0522S1DUP
Diesel Fuel C12-C24:	97.9	92.2
PQL:	25	25
Percent Recovery	98	92
RPD:	6.0	
Surrogate Recovery: o-Terphenyl	120%	118%

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

NWTPH-G/BTEX

Date Extracted: 5-22-98
Date Analyzed: 5-22&25-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID:	05-141-04			05-141-05		
Client ID:	**T4-5**			**T4-SP-4**		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.27	**ND**		0.27
Toluene	**ND**		0.27	**2.0**		0.27
Ethyl Benzene	**10**		0.27	**19**		0.27
m,p-Xylene	**14**		0.27	**83**		1.1
o-Xylene	**0.79**		0.27	**18**		0.27
TPH-Gas	**700**		27	**2100**		27
Surrogate Recovery:						
Fluorobenzene	---	S		---	S	

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

NWTPH-G/BTEX

Date Extracted: 5-22-98
Date Analyzed: 5-22&25-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID:	05-141-06			05-141-07		
Client ID:	**T4-SP-5**			**TP-2-A**		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.054	**ND**		0.060
Toluene	**0.32**		0.054	**ND**		0.060
Ethyl Benzene	**5.0**		0.054	**ND**		0.060
m,p-Xylene	**22**		1.1	**ND**		0.060
o-Xylene	**5.7**		0.054	**ND**		0.060
TPH-Gas	**1100**		5.4	**ND**		6.0
Surrogate Recovery: Fluorobenzene	92%			73%		

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

NWTPH-G/BTEX

Date Extracted: 5-22-98
Date Analyzed: 5-22&25-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: 05-141-08
Client ID: **TP-3-A**

	Result	Flags	PQL
Benzene	**ND**		0.059
Toluene	**ND**		0.059
Ethyl Benzene	**ND**		0.059
m,p-Xylene	**ND**		0.059
o-Xylene	**ND**		0.059
TPH-Gas	**ND**		5.9
Surrogate Recovery:			
Fluorobenzene	83%		

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

NWTPH-G/BTEX
METHOD BLANK QUALITY CONTROL

Date Extracted: 5-22-98
Date Analyzed: 5-22-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: MB0522S1

	Result	Flags	PQL
Benzene	**ND**		0.050
Toluene	**ND**		0.050
Ethyl Benzene	**ND**		0.050
m,p-Xylene	**ND**		0.050
o-Xylene	**ND**		0.050
TPH-Gas	**ND**		5.0
Surrogate Recovery: Fluorobenzene	102%		

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

NWTPH-G/BTEX
DUPLICATE QUALITY CONTROL

Date Extracted: 5-22-98
Date Analyzed: 5-22-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID:	05-141-08 **Original**	05-141-08 **Duplicate**	**RPD**	**Flags**
Benzene	**ND**	**ND**	NA	
Toluene	**ND**	**ND**	NA	
Ethyl Benzene	**ND**	**ND**	NA	
m,p-Xylene	**ND**	**ND**	NA	
o-Xylene	**ND**	**ND**	NA	
TPH-Gas	**ND**	**ND**	NA	
Surrogate Recovery:				
Fluorobenzene	83%	100%		

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

NWTPH-G/BTEX
MS/MSD QUALITY CONTROL

Date Extracted: 5-22-98
Date Analyzed: 5-22-98

Matrix: Soil
Units: mg/Kg (ppm)

Spike Level: 1.00 ppm

Lab ID:	05-141-08 MS	Percent Recovery	05-141-08 MSD	Percent Recovery	RPD
Benzene	0.813	81	0.826	83	1.5
Toluene	0.838	84	0.848	85	1.2
Ethyl Benzene	0.856	86	0.873	87	2.1
m,p-Xylene	0.858	86	0.865	87	0.81
o-Xylene	0.824	82	0.842	84	2.2
Surrogate Recovery:					
Fluorobenzene	86%		86%		

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

TOTAL LEAD
EPA 6010B

Date Extracted: 5-22-98
Date Analyzed: 5-22-98

Matrix: Soil
Units: mg/kg (ppm)

Client ID	Lab ID	Result	PQL
T4-5	05-141-04	**ND**	5.3
T4-SP-4	05-141-05	**25**	5.4
T4-SP-5	05-141-06	**25**	5.4
TP-2-A	05-141-07	**ND**	6.0
TP-3-A	05-141-08	**ND**	5.9

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

TOTAL LEAD
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	5-22-98
Date Analyzed:	5-22-98
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0522S1

Analyte	Method	Result	PQL
Lead	6010B	**ND**	5.0

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

TOTAL LEAD
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 5-21-98
Date Analyzed: 5-21-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-118-01

Analyte	Sample Result	Duplicate Result	RPD	Flags	PQL
Lead	**ND**	**ND**	NA		5.0

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

TOTAL LEAD
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 5-21-98
Date Analyzed: 5-21-98

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-118-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Lead	250	**208**	83	**206**	82	0.92	

Date of Report: May 28, 1998
Samples Submitted: May 22, 1998
Lab Traveler: 05-141
Project: 491.23

Date Analyzed: 5-22-98

% MOISTURE

Client ID	Lab ID	% Moisture
T3-4	05-141-01	8.0
T3-5	05-141-02	25
T3-6	05-141-03	25
T4-5	05-141-04	6.0
T4-SP-4	05-141-05	7.0
T4-SP-5	05-141-06	7.0
TP-2-A	05-141-07	16
TP-3-A	05-141-08	15

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

L - Quantitated from C7-C34 as diesel fuel #2.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample which are elevating the diesel result.

O - Hydrocarbons in the heavy oil range (>C24) are present in the sample which are elevating the diesel result.

P - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample and are elevating the gasoline result.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

Y - Acid Cleaned.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: HERRERA
Project No.: 491.23
Project Name: FEDERAL SOUTH WAREHOUSE
Project Manager: PETER JOWISE

Turn Around Requested (Check One)
- ☐ Same Day
- ☒ 24 Hours
- ☐ 48 Hours
- ☐ Standard
- ☐ _____ (other)

Project Chemist: DAB

Laboratory No.

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8240/624/8260	Halogenated Volatiles by 8260	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8081/608	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	LEAD 6010						% Moisture
1	T3-4	5/21	1515	SOIL	1			X																X
2	T3-5		1520		1			X																X
3	T3-6		1535		1			X																X
4	T4-5		1335		1		X											X						X
5	T4-SP-4		1630		1		X											X						X
6	T4-SP-5		1635		1		X											X						X
7	TP-2-A		1135		1		X											X						X
8	TP-3-A		1145		1		X											X						X
																								X

RELINQUISHED BY	DATE	RECEIVED BY	DATE	COMMENTS:
[signature]	10:30	[signature]	5/22/98	
FIRM HERRERA	TIME 5/22/98	FIRM OSE	TIME 10:35	
RELINQUISHED BY	DATE	RECEIVED BY	DATE	
FIRM	TIME	FIRM	TIME	
REVIEWED BY		DATE REVIEWED		

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OnSite
Environmental Inc.
Analytical Testing and Mobile Laboratory Services

June 1, 1998

Peter Jowise
Herrera Environmental Consultants, Inc.
2200 6th Avenue, Suite 601
Seattle, WA 98121

Re: Analytical Data for Project 491.23
Laboratory Reference No. 9805-163

Dear Peter:

Enclosed are the analytical results and associated quality control data for samples submitted on May 27, 1998.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

14924 NE 31st Circle • Redmond, WA 98052 • (425) 883-3881 • Fax (425) 885-4603

Date of Report: June 1, 1998
Samples Submitted: May 27, 1998
Lab Traveler: 05-163
Project: 491.23

NWTPH-Dx

Date Extracted:	5-28-98
Date Analyzed:	5-28-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	T3-7	T3-8	T3-9
Lab ID:	05-163-01	05-163-02	05-163-03
Diesel Fuel C12-C24:	35	ND	ND
PQL:	27	39	32
Oil C24-C34:	ND	ND	ND
PQL:	53	78	65
Surrogate Recovery:			
o-Terphenyl	89%	108%	65%

Flags:

Date of Report: June 1, 1998
Samples Submitted: May 27, 1998
Lab Traveler: 05-163
Project: 491.23

NWTPH-Dx

Date Extracted:	5-28-98
Date Analyzed:	5-28-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	T3-10	T3-11	T3-12
Lab ID:	05-163-04	05-163-05	05-163-06
Diesel Fuel C12-C24:	ND	ND	ND
PQL:	27	27	28
Oil C24-C34:	ND	ND	ND
PQL:	54	54	56
Surrogate Recovery:			
o-Terphenyl	121%	126%	101%

Flags:

Date of Report: June 1, 1998
Samples Submitted: May 27, 1998
Lab Traveler: 05-163
Project: 491.23

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	5-28-98
Date Analyzed:	5-28-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB0528S1
Diesel Fuel C12-C24:	ND
PQL:	25
Oil C24-C34:	ND
PQL:	50
Surrogate Recovery:	
o-Terphenyl	113%

Flags:

Date of Report: June 1, 1998
Samples Submitted: May 27, 1998
Lab Traveler: 05-163
Project: 491.23

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	5-27-98
Date Analyzed:	5-27-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	05-162-03	05-162-03 DUP
Diesel Fuel C12-C24:	2880	2980
PQL:	130	130
RPD:	3.4	
Surrogate Recovery:		
o-Terphenyl	---	---
Flags:	S	S

Date of Report: June 1, 1998
Samples Submitted: May 27, 1998
Lab Traveler: 05-163
Project: 491.23

NWTPH-Dx
SB/SBD QUALITY CONTROL

Date Extracted:	5-27-98	
Date Analyzed:	5-27-98	
Matrix:	Soil	
Units:	mg/Kg (ppm)	
Spike Level:	100 ppm	
Lab ID:	SB0527S1	SB0527S1 DUP
Diesel Fuel C12-C24:	78.2	72.1
PQL:	25	25
Percent Recovery:	78	72
RPD:	8.1	
Surrogate Recovery:		
o-Terphenyl	116%	107%

Flags:

Date of Report: June 1, 1998
Samples Submitted: May 27, 1998
Lab Traveler: 05-163
Project: 491.23

Date Analyzed: 5-28-98

% MOISTURE

Client ID	Lab ID	% Moisture
T3-7	05-163-01	6.0
T3-8	05-163-02	36
T3-9	05-163-03	23
T3-10	05-163-04	7.0
T3-11	05-163-05	8.0
T3-12	05-163-06	10

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

L - Quantitated from C7-C34 as diesel fuel #2.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample which are elevating the diesel result.

O - Hydrocarbons in the heavy oil range (>C24) are present in the sample which are elevating the diesel result.

P - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample and are elevating the gasoline result.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

Y - Acid Cleaned.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
14924 NE 31st Circle • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: HERRERA
Project No.: 491.23
Project Name: FED. CENTER S. WAREHOUSE
Project Manager: PETER JOWISE

Turn Around Requested (Check One)
- ☐ Same Day
- ☒ 24 Hours
- ☐ 48 Hours
- ☐ Standard
- ☐ _____ (other)

Project Chemist: DAB
Laboratory No. 05-163

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8240/624/8260	Halogenated Volatiles by 8260	Semivolatiles by 8270/625	PAHs by 8270/625	PCB's by 8081/608	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	% Moisture
1	T3-7	5/27	~~1545~~ 1545	SOIL	1			X										X
2	T3-8		1550		1			X										X
3	T3-9		1555		1			X										X
4	T3-10		1600		1			X										X
5	T3-11		1605		1			X										X
6	T3-12		1610		1			X										X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
[signature]	5/27/98	[signature]	5-27-98
FIRM: HERRERA	TIME: 5:30	FIRM: OSE	TIME: 5:30
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FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

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